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NATIONAL MARINE FISHERIES SERVICE - HONOLULU LABORATORY - 2570 DOLE STREET HONOLULU, HI 96822-2396

AUGUST 2000

FISHERY STATISTICS OF THE WESTERN PACIFIC

VOLUME XV

Territory of American Samoa (1998)

Commonwealth of the Northern Mariana Islands (1998)

Territory of Guam (1998)

State of Hawaii (1998)

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Compiled by

David C. Hamm, Nathan T.S. Chan, and Michael M.C. Quach

Honolulu Laboratory
Southwest Fisheries Science Center
National Marine Fisheries Service, NOAA
Honolulu, Hawaii 96822-2396

ADMINISTRATIVE REPORT H-00-08

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PREFACE

In recent years, the demand for data and information concerning marine fisheries has greatly increased. To help meet these increased needs in the central and western Pacific areas, the National Marine Fisheries Service's (NMFS) Southwest Fisheries Science Center (SWFSC) initiated the Western Pacific Fishery Information Network (WPacFIN) to assist Pacific island fisheries agencies in upgrading their data collecting, processing, and reporting capabilities. Several agencies participate in this program:

American Samoa	• Department of Marine and Wildlife Resources (DMWR)
Commonwealth of the Northern Mariana Islands (CNMI)	• Division of Fish and Wildlife (DFW)
Guam	• Division of Aquatic and Wildlife Resources (DAWR) • Department of Commerce (DOC)
Hawaii	• Hawaii Division of Aquatic Resources (HDAR) • NMFS Southwest Fisheries Science Center (SWFSC), Honolulu Laboratory • NMFS Southwest Region (SWR), Pacific Island Area Office (PIAO)

In 1982, these agencies formed a Fisheries Data Coordinating Committee (FDCC) and a FDCC Technical Subcommittee to help guide, coordinate, and monitor all of their activities. Significant progress has been made by all participating agencies, particularly in the areas of upgrading data collecting and processing systems.

As a major step in improving and coordinating the data reporting and distributing systems of the agencies, in May 1985 the FDCC agreed to produce a combined document reporting each island's major fisheries statistics. Production of the document would be the responsibility of the FDCC Technical Subcommittee and would be coordinated by the WPacFIN program manager. Each agency would supply the data required to produce the tables and graphs for its respective chapter of the report, and central WPacFIN staff would produce and distribute the document as part of the Administrative Report Series of the Southwest Fisheries Science Center.

This document is the fifteenth volume in the series "Fishery Statistics of the Western Pacific" and contains 1998 summaries of commercial landings for American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and Hawaii. As with previous volumes, this volume is divided into sections, one each for the major island areas.

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BACKGROUND

This report is compiled by fisheries agencies participating in the Western Pacific Fishery Information Network (WPacFIN, formerly referenced as WPACFIN). A collaborative effort between agencies in Hawaii, Guam, the Commonwealth of the Mariana Islands (CNMI), and American Samoa, WPacFIN's goal is to improve the availability and dissemination of fisheries information. Participating groups include:

American Samoa	• Department of Marine and Wildlife Resources (DMWR)
Commonwealth of the Northern Mariana Islands (CNMI)	• Division of Fish and Wildlife (DFW)
Guam	• Division of Aquatic and Wildlife Resources (DAWR) • Department of Commerce (DOC)
Hawaii	• Hawaii Division of Aquatic Resources (HDAR) • NMFS Southwest Fisheries Science Center (SWFSC), Honolulu Laboratory • NMFS Southwest Region (SWR), Pacific Island Area Office (PIAO)

WPacFIN and these groups collect, computerize, edit, and process data from these agencies. Ultimately WPacFIN staff at the Honolulu Laboratory create the summaries and graphs found in this document.

Data from DMWR, DAWR, and DFW are supplied on portable computer media in established WPacFIN database formats, whereas data for Hawaii were provided by HDAR via a dial-in telecommunications link. Once data from all agencies are put into the proper format on the central WPacFIN computer and appropriate edit and verification procedures completed, summary reports and files are produced using software developed by WPacFIN staff specifically for this purpose. Graphs are produced using commercially available software.

PROGRESS

In 1981 when WPacFIN began assisting agencies improve their data collecting and

processing systems, only the State of Hawaii had computerized processing. By mid-1982, fisheries offices in American Samoa, Guam, and the CNMI were using WPacFIN supplied computers to process data. Since that time, these agencies have made many significant improvements to their data collecting systems and have established sound, automated data processing systems. Most agencies can now provide fishery statistics to WPacFIN within 45 days of the date of collection.

In particular, the HDAR has significantly improved its procedures for editing, updating, and processing Hawaii's data; it has reduced the lag time in data processing from about 2 ½ years to less than 3 months for most data. The biggest problems still facing HDAR in improving their data systems are reducing delinquency of fishermen reporting and implementing a validation system to ensure that what gets reported by fishermen is accurate. Efforts are currently underway to develop and implement such a system.

PRECAUTIONS

Data collecting and processing systems vary greatly among Pacific island fisheries agencies. Although much standardization has taken place and is continuing, there remain many unique aspects of each island's systems based on local needs and capabilities.

When using summaries contained in this report, especially if making comparisons, one should keep in mind the nature of the systems used to produce the data. For instance, Hawaii's commercial landings data are based on mandatory monthly reporting by licensed commercial fishermen; CNMI's and Guam's data are based on voluntary reporting of major fish buyers using government-provided "trip-ticket" invoices; American Samoa's data are based on creel survey sampling of participation, interviews of fishermen, and a data expansion program. Each system has advantages and disadvantages, and the user should be aware of them when comparing or interpreting data. Additionally, WPacFIN staff and the island agencies are continually making improvements to the data collecting and processing systems in each area. Because the improvements usually result in updates to the estimates of total and commercial landings, the data in this volume may not match exactly with data in previous volumes of this report series.

The user should also be aware that species assemblages vary among island groups, as do cultural preferences and principal fishing techniques and gear. Population size is of particular importance when making interpretations of the relative value and importance of the fisheries. To help the user make these value judgments, explanations of the data collecting and processing systems are provided in each island's section of this report.

CONTENTS

This document is divided into sections by island group. Each section contains reports on the monthly and annual landings by species or species groups for the commercial fleet. Two sets of annual summaries are included for Hawaii, one each for commercial landings that were sold and not sold.

Definitions

In addition to the description of the systems and the monthly and annual reports, each section contains graphs of some of the summary fishery statistics of particular interest or importance to participating WPacFIN agencies. For purposes of graphical presentation of the data, several categories have been defined for each island's fisheries. Because of differences in reporting systems and capabilities among the islands, species contained within each category may vary, but all categories are documented in each island's section. Overlap exists among some of the categories used for different graphs. Categories used in the graphs include the following:

1. Fisheries Categories - These are combinations of species of similar ecological types, specifically, pelagic, bottom fish, reef fish, and "other." "Other" includes groups that generally traverse these categories, such as certain sharks and jacks, or are not typically included in these groups, such as mullet and milkfish.

2. Pelagic Management Unit Species (PMUS) - The Magnuson Fishery Conservation and Management Act of 1976 was amended in 1992 to place tunas under U.S. jurisdiction for management. The Fishery Management Plan for Pacific Pelagic Species was amended to reflect this change and the acronym PPMUS was created to refer to a new group which includes the tunas. However, this report series will continue to treat the tunas as a separate category for graphical purposes and use the PMUS acronym. Therefore, the PMUS category in this document includes only the billfishes, wahoo, mahimahi, and oceanic sharks.

3. Bottom Fish Management Unit Species (BMUS) - Defined as the species of initial importance in the Fishery Management Plan for bottom fish and seamount fisheries, including the major deepwater snapper, grouper, emperor, and certain jacks.

4. Tunas - Predominantly skipjack and yellowfin tunas in all areas, but also including most other tuna species and excluding wahoo. With the recent growth of longline fisheries in Hawaii and American Samoa, bigeye and albacore tuna have also become more important.

5. Other Tunas - All tunas as defined above, but excluding skipjack and yellowfin tunas.

6. Billfish - Combination of all marlin, sailfish, spearfish, and swordfish species.

Graphics

A minimum of four types of graphs are provided with each island's data. Type I graphs present summary charts of the major species and species groups for 1998. Type II graphs are seasonality plots for the major species or species groups, showing the average weight landed during each month for all years combined. Type III graphs are based on annual summary

statistics and help visualize the variability among years. Type IV graphs are plots of monthly landings of some of the major commercially important species and document fluctuations in landings of these species over the entire time series. Type V graphs are based on creel survey data and include plots of catch and effort by fishing method plus a combination of several of the types I-IV graphs.

I. Monthly graphs for each year's data including:

   A. Major fisheries categories
   B. Tunas, PMUS, and BMUS
   C. Wahoo, mahimahi, and billfish
   D. Skipjack, yellowfin, and other tunas

II. Plots of average monthly landings for:

   A. Tunas, PMUS, and BMUS
   B. Wahoo and mahimahi
   C. Billfish species:
      1. Marlin and sailfish - American Samoa and CNMI
      2. Blue marlin, black marlin, and striped marlin - Hawaii
      3. Sailfish, shortbill spearfish, and swordfish - Hawaii
   D. Skipjack, yellowfin, and other tunas
   E. BMUS and the most important bottom fish species
      1. BMUS, ehu, and onaga – American Samoa
      2. BMUS, emperor, and grouper – CNMI and Guam
      3. BMUS, onaga, and opakapaka – Hawaii
      4. BMUS, ehu, and uku - Hawaii

III. Graphs of annual summary statistics for:

   A. Major fisheries categories
   B. Total commercial landings - pounds and dollars
   C. Tunas, PMUS, and BMUS
   D. Wahoo, mahimahi, and billfish
   E. Skipjack, yellowfin, and other tunas

IV. Graphs of monthly landings over the entire time series for the following major species:

   A. Wahoo – all four areas
   B. Mahimahi – all four areas

C. Blue marlin – all four areas
D. Black marlin – Hawaii
E. Striped marlin – Hawaii
F. Sailfish – American Samoa, Guam, and Hawaii
G. Shortbill spearfish – Guam and Hawaii
H. Swordfish – Hawaii
I. Skipjack tuna – All four areas
J. Yellowfin tuna – All four areas
K. Opakapaka – Hawaii
L. Onaga – American Samoa and Hawaii
M. Uku – Hawaii
N. Ehu – American Samoa and Hawaii
O. Emperors – CNMI and Guam
P. Grouper – CNMI and Guam

AMERICAN SAMOA

Fishery Statistics
1998

AMERICAN SAMOA 1998 FISHERY STATISTICS

Compiled by

American Samoa

Department of Marine and Wildlife Resources

and the

Western Pacific Fishery Information Network

August 2000

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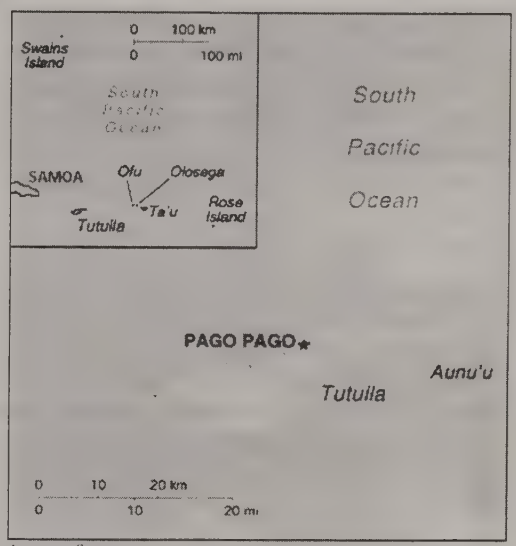
AMERICAN SAMOA 1998 FISHERY STATISTICS

INTRODUCTION

American Samoa, located at lat. 14° S and long. 170° W, is made up of several islands — Tutuila, Aunu`u, the Manu`a Islands of Ofu, Olesaga and Ta`u, the uninhabited Rose Atoll, and the sparsely populated Swain's Island (see map). Its population is approximately 64,000, over 80% of which reside on the main island of Tutuila, and its economy is based primarily on its tuna industry.



American Samoa
source: <http://www.cia.gov/cia/publications/factbook/aq.html>; *The World Factbook 1999*

The American Samoa Department of Marine and Wildlife Resources (DMWR), formerly known as the Office of Marine Resources, is located near Pago Pago on Tutuila. It has been collecting commercial fisheries data from the Tutuila fleet since the early 1970s and from the Manu`a Islands since 1983. In 1985, DMWR's data collection programs were modified to include recreational and subsistence fisheries data as well.

American Samoa's domestic fisheries are typically small-boat, one-day fisheries. *Alias* (pronounced *ah-lee-ahs*), or manta cats, make up the majority of the fleet. Measuring 28 to 32 feet in length, these outboard-engine-powered catamarans traditionally did trolling and bottomfishing until mid-1995 when their conversion for longlining began.

The domestic longlining fishery became the dominant fishery by 1996 and has continued to be very successful. By 1998 26 longlining vessels were active, resulting in significantly increased catches of albacore tuna (the primary target species), blue marlin, yellowfin tuna, wahoo, and mahimahi.

During 1998, 49 different boats were sampled during the weekly creel survey, 43 from Tutuila and 8 from the Manu`a Islands, with 2 boats being sampled in both areas. The majority of the catch was sold locally, and most of the longline albacore went to the two canneries on Tutuila. On average, Tutuila boat trips consisted of 3-man crews, fished 8 hours, and caught 360 pounds of fish. Manu`a boat trips also consisted of 3-man crews, but only fished for 5 hours and caught less than 80 pounds of fish. Over 99% of the longline fishing was based on Tutuila.

SPECIAL NOTE ON DATA REVISIONS

Significant changes in the fisheries of American Samoa began taking place in the mid 1990's with the development of the longline fishery and a nighttime, boat-based SCUBA spearfishing fishery. Because of the nature of these fisheries, biases began creeping into the effort-counting and interviewing processes of the DMWR surveys. By 1997 WPacFIN staff discovered the problems, and modifications to survey techniques were implemented by DMWR staff. It became clear by early 1998 that the algorithms used to expand the survey data and estimate for the total fishery also needed to be changed. Much progress has been made in the past year to develop a new data processing system that will better handle the more complex nature of today's fisheries in American Samoa and reprocess the historical time series. This volume includes improved, "best available" data for most years, but these are not considered "final" at this time as additional data quality control procedures and algorithm enhancements are still being made.

DATA COLLECTING SYSTEM

Before 1985, DMWR obtained catch statistics by interviewing fishermen at the end of their trips and kept records of as much commercial fishing activity as possible. This data collection method was accurate for trips where interviews were conducted. Yet it was very labor intensive, did not cover all trips, and intentionally excluded recreational and subsistence fisheries.

Therefore in October 1985 a new sampling system was implemented on Tutuila to provide better coverage and statistics on all boat-based fisheries (the new sampling methods were not implemented in the Manu`a Islands because the fishing fleet is centrally located and is small enough that statistics are being collected for nearly every trip).

The details of this boat-based fishery sampling program have changed over the years to accommodate changes in the fisheries; but it is still a systematic, random sampling program that stratifies sampling by type of day, either weekday or weekend/holiday. Because of logistical and cultural reasons, Sundays are no longer sampled as effort is extremely low and not similar to other weekend/holiday-type days. DMWR staff normally sample 2 weekdays and 1 weekend/holiday per week. During survey days, counts of total participation are collected. Tutuila is divided into six areas, five of which are sampled. It is assumed that the non-sampled area is similar to the sampled areas in fishing activity and success rate. Furthermore, it is assumed that the fisherman interviewed are representative of the entire fishing population and that they give accurate information. Unless contrary information is available, a boat is assumed to be "out fishing" if its trailer is at a boat ramp or the boat is missing from its normal berthing area. The survey data is later expanded to estimate the total catch and effort in Tutuila.

Survey data are collected in the field on log sheets and returned to the DMWR office for editing. The following information is collected for each interview:

- Date *
- Type of day *
- Time *
- Boat name *
- Captain or boat owner's name
- Method of fishing *
- Disposition of catch *
- Species caught *
- Number of pieces for each species
- Weight in pounds for each species *
- Price per pound for each species
- Area fished
- Home island
- Total trip weight in pounds *
- Total hours fished (trip length) *
- Number of fishermen
- Number of gear used

It is not always possible to obtain information on all the items listed. However, the ones marked with an asterisk (*) are considered essential for data expansion purposes. Also, identification and weight of each species are often not obtainable; in this case a code for species groupings (e.g., miscellaneous bottom fish) is used.

In addition to the extensive creel survey and monitoring programs in Tutuila and the Manu`a Islands, DMWR staff also obtain data from the two canneries, from the federal logbooks used by the longline fleet, and from purchase receipts from most fish dealers, hotels, stores, and restaurants. All sources of data are used to create the best available information for American Samoa.

DATA PROCESSING SYSTEM

Interview forms are returned to the office, edited, coded, and entered into databases — the pre-October 1985 commercial landings database and the offshore creel survey data collected since then. DMWR produces edit and summary reports to help verify that the data is entered correctly.

Next, the creel survey data are processed using WPacFIN's offshore data expansion system. This menu-driven system has undergone several major revisions over the years and the current version is the most robust of all. It summarizes the creel survey, participation count, and interview data and produces total catch-and-effort-expansion and species-composition reports. Based on the "disposition of catch" it also produces estimates of the commercial landings of the monitored fleet.

During 1998, a large longline vessel offloaded its catch directly at the cannery and was not monitored in the standard creel survey. However, the new data processing system adjusts for this by integrating the catch data, provided by the vessel via the federal logbook program, with the creel fish size data and cannery price data. Additionally, the data from the Manu`a Islands is

added. This fairly complex integration of data from four data systems provides the best estimates of total commercial landings for American Samoa.

DATA REPORTING SYSTEM

After all editing, quality control, and data interpretation activities are completed monthly and annual commercial landings reports by species are generated. Each of the commercial landings reports contains the common name, weight in pounds, value in dollars, and the average price per pound of each species or species group. Each monthly report contains a subtotal for the sum of all species for that month, and the December report contains the December subtotal and the annual total. Annual reports contain the total estimated commercial landings for each species and for all species combined for the calendar year.

The following species, species groups, and abbreviations are used in the tables and graphs of American Samoa's data:

I. Pelagic Management Unit Species (PMUS)

Although the Magnuson Fishery Conservation and Management of 1976 was amended in 1992 to include tunas in the PMUS (PPMUS), this report series will continue to tunas as a separate category from the PPMUS. The PMUS category includes:

Mahimahi (dolphin)
Blue marlin
Black marlin
Sailfish
Shortbill spearfish
Wahoo
Sharks

II. Bottomfish Management Unit Species (BMUS)

Jacks (unclassified)
Black jack
Amberjack
Giant trevally
Bottom fish (unclassified)
Groupers (unclassified)
Blacktip grouper
Lunartail grouper
Snappers (unclassified)
Bluelined snapper
Gray jobfish (uku)
Deepwater bottom fish (unclassified)
Yellow opakapaka
Hawaiian opakapaka
Opakapaka
Gindai (flower snapper)
Yellowtail snapper
Lehi (silverjaw snapper)
Onaga (red or longtail snapper)
Ehu (red snapper)
Emperorfish (unclassified)
Ambon emperor
Redgill emperor

III. Billfish

Blue marlin
Black marlin
Sailfish
Shortbill spearfish

IV. Tunas

Tunas (unclassified)
Skipjack tuna
Yellowfin tuna
Dogtooth tuna
Albacore
Bigeye tuna
Kawakawa

V. Other Tuna

The above tuna species excluding skipjack and yellowfin tuna

VI. Fisheries Categories

A. Pelagics

All PMUS and tuna species plus the following:

Troll fish (unclassified)
Barracuda
Rainbow runner

B. Bottom Fish

All BMUS plus the following:

Bigeye trevally
Bluefin trevally
Goldspot trevally
Trevally
Whitemouth trevally
Peacock grouper
Flagtail grouper
Tomato grouper
Twinspot/red snapper
Humpback snapper
Blood snapper
Brown snapper
Bluelined gindai
Black snapper
Stone's snapper
Kusakar's snapper

Yellowspot grouper
Striped grouper
Spotted grouper
Small mouth grouper
Giant grouper
Rufous snapper
Blacktail snapper
Onespot snapper
Bigeye emperor
Goldenline bream
Longnose emperor
Bluelined bream
Orangespot emperor
Snake mackerel
Oilfish

C. Reef Fish

Reef fish (unclassified)
Mullet
Rabbitfish
Surgeonfish and tangs (unclassified)
Lined surgeon
Yelloweyed surgeon
Convict tang
Dussumier's surgeon
Spotted surgeon
Unicornfish
Squirrelfish (unclassified)
Berndt's soldierfish
Bigeye squirrelfish
Parrotfish
Terapon perch
Wrasse
Goatfish (unclassified)
Pink goatfish
Inshore groupers (unclassified)
Triggerfish
Butterflyfish
Porcupinefish
Inshore snappers (unclassified)

D. Other

Miscellaneous
Bigeye scad
Rays
Eels
Invertebrates (unclassified)
Crabs (unclassified)
Kona crab
Mangrove crab
Spiny lobster
Slipper lobster
Shrimp
Octopus
Squid
Clams
Turtle

INTERPRETATION OF STATISTICS

The user is reminded to pay heed to the precautions and assumptions identified earlier in this document, when making interpretations of or inferences from data reported in the tables and graphs. Remember also that the commercial landings summaries are not based on a census of all the fishing activities, but on samples of those activities and on integration of data from four separate data systems. One of the major factors in expanding the creel survey data into monthly and annual estimates is the use of proportionality constants to adjust for percent coverage of the surveys. The flexibility of the survey design allows for refinement of these constants as additional information is gained on the fishing activities. If the constants are improved upon, the

basic survey data can be re-expanded to create better overall estimates. However, the variability and species composition would not be expected to change since these statistics are based on the actual survey information collected from the fishermen. The estimates of total landings are considered to be conservative because the catch from the subsistence inshore fisheries are currently not included in this document.

Table II.1.1

American Samoa 1998 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc.)	1,214	2,470	2.03
Black jack	187	339	1.82
Amberjack	26	52	2.00
Barracudas	2,097	4,524	2.16
Bottomfish (Assorted)	761	1,522	2.00
Groupers (misc.)	628	1,262	2.01
Flagtail grouper	10	20	2.00
Tomato grouper	31	78	2.50
Blacktip grouper	73	146	2.00
Lunartail grouper	269	555	2.06
Bottom Handline Snappers	280	569	2.03
Blue lined snapper	461	947	2.05
Onespot snapper	47	94	2.00
Humpback snapper	213	483	2.27
Gray jobfish	377	754	2.00
Yellow opakapaka	419	959	2.29
Hawaiian opakapaka	72	145	2.00
Yelloweye opakapaka(P.fl.)	50	100	2.00
Gindai (flower snap)	433	1,021	2.36
Yellowtail snapper	47	117	2.50
Lehi (silverjaw)	305	971	3.19
Onaga (longtail snapper)	6,041	20,754	3.44
Ehu (squirrelfish snap.)	2,522	8,132	3.22
Multidens snapper	27	54	2.00
Stone's snapper	55	110	2.00
Kusakar's snapper	116	233	2.00
Emperors (misc.)	764	1,530	2.00
Longnose emperor	10	21	2.00
Oilfish	214	107	0.50
Reef fish (Assorted)	6,795	13,402	1.97
Rudderfish	539	1,078	2.00
Rabbitfish	31	61	2.00
Lined surgeon	19,793	39,212	1.98
Striped bristletooth	10,779	20,967	1.95
Yellowfin surgeonfish	1,095	1,926	1.76
Unicornfishes (misc.)	5,524	11,214	2.03
Squirrelfish	1,612	3,198	1.98
Saber squirrelfish	35	108	3.10
Bigeye squirrelfish	5	10	2.00
Parrotfishes	25,140	50,580	2.01
Terapon perch	22	45	2.00
Wrasse	1,327	2,653	2.00
Goatfish	55	110	2.00
Inshore groupers	4,263	8,445	1.98
Inshore snappers	388	776	2.00
Mahimahi (dolphin)	22,962	46,022	2.00
Swordfish	3,518	12,580	3.58

Table II.1.1 (Cont.)

Species	Pounds	Value	$/lb
Blue marlin	36,473	41,175	1.13
Sailfish	3,293	4,962	1.51
Rainbow runner	674	674	1.00
Wahoo	28,876	56,416	1.95
Skipjack tuna	20,978	19,289	0.92
Dogtooth tuna	356	646	1.82
Albacore	1,001,740	1,064,112	1.06
Yellowfin tuna	80,892	140,034	1.73
Bigeye tuna	21,883	33,958	1.55
Kawakawa	20	24	1.20
Moonfish (Opah)	382	764	2.00
Sunfish(Mola mola)	383	383	1.00
Crabs	966	3,448	3.57
Spiny lobster	4,290	17,075	3.98
Octopus	929	1,409	1.52
Squid	7	11	1.50
** TOTAL **	1,323,776	1,644,837	1.24

Table II.1.2

American Samoa January 1998 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc.)	56	112	2.00
Black jack	35	53	1.50
Barracudas	449	797	1.77
Bottomfish (Assorted)	6	12	2.00
Groupers (misc.)	6	12	2.00
Blacktip grouper	5	9	2.00
Lunartail grouper	20	40	2.00
Blue lined snapper	97	195	2.00
Humpback snapper	30	80	2.69
Gray jobfish	37	73	2.00
Yellow opakapaka	23	50	2.22
Yelloweye opakapaka(P.fl.	12	24	2.00
Gindai (flower snap)	16	32	2.00
Lehi (silverjaw)	23	80	3.50
Onaga (longtail snapper)	429	1,720	4.01
Ehu (squirrelfish snap.)	244	790	3.24
Stone's snapper	11	21	2.00
Emperors (misc.)	69	138	2.00
Longnose emperor	10	21	2.00
Reef fish (Assorted)	1,538	3,010	1.96
Lined surgeon	1,163	2,129	1.83
Striped bristletooth	1,344	2,472	1.84
Yellowfin surgeonfish	348	608	1.75
Unicornfishes (misc.)	313	598	1.91
Squirrelfish	127	236	1.85
Parrotfishes	3,699	7,146	1.93
Wrasse	216	433	2.00
Inshore groupers	333	626	1.88
Inshore snappers	127	255	2.00
Mahimahi (dolphin)	2,123	2,123	1.00
Blue marlin	2,527	2,527	1.00
Sailfish	199	297	1.49
Rainbow runner	10	10	1.00
Wahoo	2,615	5,106	1.95
Skipjack tuna	1,787	1,678	0.94
Dogtooth tuna	9	12	1.30
Albacore	86,295	94,924	1.10
Yellowfin tuna	4,419	4,887	1.11
Bigeye tuna	1,432	2,239	1.56
Kawakawa	8	10	1.20
Moonfish (Opah)	130	260	2.00
Crabs	15	23	1.50
Spiny lobster	216	931	4.30
Octopus	93	139	1.50
** SUBTOTAL **	112,664	136,936	1.22

Table II.1.3

American Samoa February 1998 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc.)	210	425	2.02
Black jack	15	22	1.50
Amberjack	8	17	2.00
Barracudas	70	120	1.71
Bottomfish (Assorted)	28	57	2.00
Groupers (misc.)	87	174	2.00
Blacktip grouper	32	64	2.00
Lunartail grouper	42	88	2.09
Bottom Handline Snappers	64	127	2.00
Blue lined snapper	107	224	2.10
Onespot snapper	15	30	2.00
Humpback snapper	32	64	2.00
Gray jobfish	113	226	2.00
Yellow opakapaka	131	299	2.27
Hawaiian opakapaka	57	114	2.00
Yelloweye opakapaka(P.fl.)	15	30	2.00
Gindai (flower snap)	116	273	2.36
Yellowtail snapper	15	37	2.50
Lehi (silverjaw)	46	160	3.50
Onaga (longtail snapper)	1,031	3,349	3.25
Ehu (squirrelfish snap.)	355	1,116	3.15
Stone's snapper	5	9	2.00
Kusakar's snapper	8	17	2.00
Emperors (misc.)	203	406	2.00
Oilfish	68	34	0.50
Reef fish (Assorted)	1,765	3,455	1.96
Lined surgeon	1,334	2,443	1.83
Striped bristletooth	1,543	2,837	1.84
Yellowfin surgeonfish	399	698	1.75
Unicornfishes (misc.)	359	686	1.91
Squirrelfish	146	271	1.85
Saber squirrelfish	7	23	3.50
Parrotfishes	4,245	8,200	1.93
Wrasse	248	497	2.00
Inshore groupers	377	708	1.88
Inshore snappers	146	293	2.00
Mahimahi (dolphin)	3,822	9,620	2.52
Blue marlin	5,775	7,351	1.27
Sailfish	678	1,010	1.49
Rainbow runner	473	473	1.00
Wahoo	5,894	11,650	1.98
Skipjack tuna	1,430	1,333	0.93

Table II.1.3 (Cont.)

Species	Pounds	Value	$/lb
Dogtooth tuna	52	97	1.87
Albacore	93,179	105,983	1.14
Yellowfin tuna	6,883	14,699	2.14
Bigeye tuna	530	992	1.87
Kawakawa	12	14	1.20
Crabs	18	27	1.50
Spiny lobster	248	1,068	4.30
Octopus	106	160	1.50
** SUBTOTAL **	132,542	182,070	1.37

Table II.1.4

American Samoa March 1998 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc.)	264	529	2.01
Black jack	16	23	1.50
Amberjack	14	28	2.00
Barracudas	37	74	2.00
Bottomfish (Assorted)	30	59	2.00
Groupers (misc.)	125	250	2.00
Tomato grouper	2	5	2.50
Blacktip grouper	19	38	2.00
Lunartail grouper	50	102	2.02
Bottom Handline Snappers	110	219	2.00
Blue lined snapper	23	46	2.00
Onespot snapper	26	51	2.00
Humpback snapper	42	85	2.00
Gray jobfish	116	231	2.00
Yellow opakapaka	159	380	2.39
Yelloweye opakapaka(P.fl.)	5	11	2.00
Gindai (flower snap)	200	473	2.37
Yellowtail snapper	26	64	2.50
Lehi (silverjaw)	76	265	3.50
Onaga (longtail snapper)	1,708	5,478	3.21
Ehu (squirrelfish snap.)	545	1,708	3.14
Stone's snapper	25	51	2.00
Emperors (misc.)	212	425	2.00
Oilfish	117	58	0.50
Reef fish (Assorted)	1,492	2,926	1.96
Lined surgeon	1,040	1,903	1.83
Striped bristletooth	1,271	2,349	1.85
Yellowfin surgeonfish	311	544	1.75
Unicornfishes (misc.)	307	590	1.92
Squirrelfish	114	211	1.85
Saber squirrelfish	11	40	3.50
Parrotfishes	4,074	7,922	1.94
Wrasse	193	387	2.00
Inshore groupers	359	683	1.90
Inshore snappers	114	228	2.00
Mahimahi (dolphin)	1,040	2,749	2.64
Swordfish	2,983	10,441	3.50
Blue marlin	1,115	1,370	1.23
Sailfish	374	467	1.25
Rainbow runner	88	88	1.00
Wahoo	1,887	3,176	1.68
Skipjack tuna	1,888	1,870	0.99

Table II.1.4 (Cont.)

Species	Pounds	Value	$/lb
Dogtooth tuna	209	419	2.00
Albacore	20,216	22,642	1.12
Yellowfin tuna	8,843	19,297	2.18
Bigeye tuna	1,639	3,972	2.42
Sunfish(Mola mola)	383	383	1.00
Crabs	14	21	1.50
Spiny lobster	193	832	4.30
Octopus	83	124	1.50
** SUBTOTAL **	54,190	96,289	1.78

Table II.1.5

American Samoa April 1998 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc.)	45	90	2.00
Black jack	23	34	1.50
Amberjack	3	6	2.00
Barracudas	302	674	2.23
Bottomfish (Assorted)	6	11	2.00
Groupers (misc.)	25	50	2.00
Blacktip grouper	3	7	2.00
Lunartail grouper	9	19	2.00
Bottom Handline Snappers	22	45	2.00
Onespot snapper	5	10	2.00
Humpback snapper	3	6	2.00
Gray jobfish	30	61	2.00
Yellow opakapaka	32	76	2.39
Yelloweye opakapaka(P.fl.	9	19	2.00
Gindai (flower snap)	38	91	2.38
Yellowtail snapper	5	13	2.50
Lehi (silverjaw)	15	51	3.50
Onaga (longtail snapper)	312	1,002	3.21
Ehu (squirrelfish snap.)	111	348	3.14
Stone's snapper	8	16	2.00
Emperors (misc.)	39	78	2.00
Oilfish	24	12	0.50
Reef fish (Assorted)	734	1,467	2.00
Rabbitfish	6	12	2.00
Lined surgeon	1,610	3,219	2.00
Striped bristletooth	265	530	2.00
Yellowfin surgeonfish	38	76	2.00
Unicornfishes (misc.)	601	1,202	2.00
Squirrelfish	74	148	2.00
Saber squirrelfish	2	8	3.50
Parrotfishes	605	1,211	2.00
Inshore groupers	157	314	2.00
Mahimahi (dolphin)	144	288	2.00
Blue marlin	1,310	1,561	1.19
Sailfish	203	405	2.00
Rainbow runner	29	29	1.00
Wahoo	1,982	3,668	1.85
Skipjack tuna	1,814	1,658	0.91
Dogtooth tuna	9	17	2.00
Albacore	55,688	62,522	1.12
Yellowfin tuna	8,338	13,995	1.68
Bigeye tuna	2,104	3,337	1.59
Crabs	76	265	3.50
Spiny lobster	111	387	3.50
** SUBTOTAL **	76,968	99,037	1.29

Table II.1.6

American Samoa May 1998 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc.)	34	73	2.16
Barracudas	274	626	2.29
Groupers (misc.)	4	10	2.50
Tomato grouper	8	20	2.50
Lunartail grouper	12	27	2.25
Bottom Handline Snappers	70	140	2.00
Gray jobfish	15	30	2.00
Hawaiian opakapaka	11	22	2.00
Gindai (flower snap)	12	30	2.50
Lehi (silverjaw)	22	55	2.50
Onaga (longtail snapper)	58	145	2.50
Ehu (squirrelfish snap.)	37	93	2.50
Emperors (misc.)	47	93	2.00
Reef fish (Assorted)	105	210	2.00
Rudderfish	43	86	2.00
Lined surgeon	1,213	2,427	2.00
Striped bristletooth	603	1,206	2.00
Unicornfishes (misc.)	74	148	2.00
Squirrelfish	103	214	2.07
Parrotfishes	1,766	3,531	2.00
Inshore groupers	349	702	2.01
Mahimahi (dolphin)	396	993	2.50
Blue marlin	733	868	1.18
Wahoo	910	1,809	1.99
Skipjack tuna	895	870	0.97
Dogtooth tuna	24	31	1.30
Albacore	69,211	76,511	1.11
Yellowfin tuna	17,296	22,005	1.27
Bigeye tuna	2,254	3,742	1.66
Crabs	132	268	2.03
Spiny lobster	482	1,997	4.14
** SUBTOTAL **	97,194	118,982	1.22

Table II.1.7

American Samoa June 1998 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc.)	159	335	2.12
Barracudas	166	415	2.50
Bottom Handline Snappers	10	28	2.95
Emperors (misc.)	3	6	1.99
Reef fish (Assorted)	107	224	2.09
Rudderfish	161	322	2.00
Rabbitfish	25	50	2.00
Lined surgeon	1,484	3,192	2.15
Striped bristletooth	601	1,270	2.11
Unicornfishes (misc.)	925	2,102	2.27
Squirrelfish	107	222	2.07
Parrotfishes	1,811	4,690	2.59
Goatfish	55	110	2.00
Inshore groupers	534	1,091	2.04
Mahimahi (dolphin)	657	1,315	2.00
Blue marlin	693	693	1.00
Wahoo	530	1,032	1.95
Skipjack tuna	1,354	1,323	0.98
Albacore	121,225	131,148	1.08
Yellowfin tuna	5,958	12,553	2.11
Bigeye tuna	2,098	2,983	1.42
Moonfish (Opah)	252	504	2.00
Crabs	94	921	9.85
Spiny lobster	483	1,634	3.38
Octopus	61	106	1.75
** SUBTOTAL **	139,551	168,267	1.21

Table II.1.8

American Samoa July 1998 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc.)	25	51	2.06
Black jack	6	9	1.50
Amberjack	1	1	1.98
Barracudas	150	335	2.24
Bottomfish (Assorted)	492	983	2.00
Groupers (misc.)	234	469	2.00
Tomato grouper	3	8	2.50
Blacktip grouper	4	8	2.00
Lunartail grouper	7	15	2.14
Bottom Handline Snappers	5	10	2.00
Blue lined snapper	21	41	2.00
Onespot snapper	1	2	1.99
Humpback snapper	4	9	2.13
Gray jobfish	10	19	2.00
Yellow opakapaka	11	24	2.27
Hawaiian opakapaka	4	9	2.00
Yelloweye opakapaka(P.fl.	3	6	2.00
Gindai (flower snap)	12	30	2.42
Yellowtail snapper	1	3	2.49
Lehi (silverjaw)	5	17	3.50
Onaga (longtail snapper)	133	436	3.29
Ehu (squirrelfish snap.)	61	187	3.07
Stone's snapper	2	4	2.00
Kusakar's snapper	1	1	1.98
Emperors (misc.)	30	60	2.00
Oilfish	5	3	0.50
Reef fish (Assorted)	476	952	2.00
Rudderfish	173	346	2.00
Lined surgeon	2,487	4,974	2.00
Striped bristletooth	908	1,817	2.00
Unicornfishes (misc.)	1,270	2,541	2.00
Squirrelfish	444	888	2.00
Saber squirrelfish	1	2	3.50
Parrotfishes	2,098	4,195	2.00
Terapon perch	16	32	2.00
Wrasse	487	973	2.00
Inshore groupers	860	1,719	2.00
Mahimahi (dolphin)	1,110	2,196	1.98
Blue marlin	4,383	4,714	1.08
Sailfish	162	162	1.00
Rainbow runner	2	2	1.00
Wahoo	3,049	6,098	2.00

Table II.1.8 (Cont.)

Species	Pounds	Value	$/lb
Skipjack tuna	1,945	1,719	0.88
Dogtooth tuna	2	4	1.99
Albacore	173,123	190,548	1.10
Yellowfin tuna	4,261	8,741	2.05
Bigeye tuna	532	1,193	2.24
Crabs	378	1,222	3.23
Spiny lobster	1,500	6,001	4.00
Octopus	427	641	1.50
Squid	5	8	1.50
** SUBTOTAL **	201,326	244,422	1.21

Table II.1.9

American Samoa August 1998 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc.)	29	63	2.19
Black jack	16	24	1.50
Barracudas	118	283	2.40
Bottomfish (Assorted)	151	303	2.00
Groupers (misc.)	75	151	2.02
Flagtail grouper	6	12	2.00
Blacktip grouper	5	10	2.00
Lunartail grouper	1	2	1.99
Blue lined snapper	51	114	2.25
Humpback snapper	4	8	2.00
Gray jobfish	8	15	2.00
Yellow opakapaka	3	6	2.22
Yelloweye opakapaka(P.fl.)	6	11	2.00
Gindai (flower snap)	7	15	2.00
Lehi (silverjaw)	5	17	3.50
Onaga (longtail snapper)	172	625	3.63
Ehu (squirrelfish snap.)	111	354	3.18
Stone's snapper	5	10	2.00
Emperors (misc.)	25	51	2.04
Reef fish (Assorted)	166	332	2.00
Rudderfish	77	154	2.00
Lined surgeon	983	1,967	2.00
Striped bristletooth	719	1,438	2.00
Unicornfishes (misc.)	437	873	2.00
Squirrelfish	181	373	2.06
Saber squirrelfish	14	35	2.50
Bigeye squirrelfish	5	10	2.00
Parrotfishes	972	1,944	2.00
Terapon perch	5	10	2.00
Wrasse	148	296	2.00
Inshore groupers	334	677	2.02
Mahimahi (dolphin)	3,349	6,752	2.02
Blue marlin	5,897	7,311	1.24
Sailfish	385	482	1.25
Wahoo	3,073	6,260	2.04
Skipjack tuna	1,400	1,259	0.90
Dogtooth tuna	16	21	1.30
Albacore	50,900	55,755	1.10
Yellowfin tuna	3,252	5,734	1.76
Bigeye tuna	1,347	1,819	1.35
Crabs	140	433	3.10
Spiny lobster	474	1,898	4.00
Octopus	130	195	1.50
Squid	2	2	1.50
** SUBTOTAL **	75,204	98,103	1.30

Table II.1.10

American Samoa September 1998 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc.)	56	112	2.00
Black jack	9	13	1.50
Barracudas	97	118	1.21
Bottomfish (Assorted)	35	69	2.00
Groupers (misc.)	16	32	2.00
Lunartail grouper	3	6	2.00
Blue lined snapper	64	129	2.00
Humpback snapper	26	53	2.00
Yellow opakapaka	9	20	2.22
Lehi (silverjaw)	16	56	3.50
Onaga (longtail snapper)	89	472	5.31
Ehu (squirrelfish snap.)	103	335	3.25
Emperors (misc.)	20	40	2.00
Reef fish (Assorted)	149	299	2.00
Rudderfish	85	171	2.00
Lined surgeon	1,226	2,451	2.00
Striped bristletooth	1,800	3,599	2.00
Unicornfishes (misc.)	551	1,101	2.00
Squirrelfish	104	209	2.00
Parrotfishes	1,720	3,439	2.00
Terapon perch	1	2	1.99
Wrasse	34	69	2.00
Inshore groupers	257	515	2.00
Mahimahi (dolphin)	2,645	5,041	1.91
Blue marlin	3,711	3,853	1.04
Sailfish	581	905	1.56
Rainbow runner	36	36	1.00
Wahoo	2,476	4,795	1.94
Skipjack tuna	1,379	1,318	0.96
Albacore	87,507	96,284	1.10
Yellowfin tuna	4,285	6,771	1.58
Bigeye tuna	6,339	8,558	1.35
Crabs	100	269	2.70
Spiny lobster	325	1,299	4.00
Octopus	30	45	1.50
Squid	0	1	1.50
** SUBTOTAL **	115,886	142,486	1.23

Table II.1.11

American Samoa October 1998 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc.)	2	4	2.00
Black jack	30	75	2.50
Barracudas	245	612	2.50
Bottomfish (Assorted)	5	10	2.00
Groupers (misc.)	35	70	2.00
Tomato grouper	5	13	2.50
Lunartail grouper	49	103	2.10
Blue lined snapper	25	50	2.00
Humpback snapper	38	79	2.06
Gray jobfish	9	19	2.00
Gindai (flower snap)	13	33	2.50
Lehi (silverjaw)	49	123	2.50
Onaga (longtail snapper)	185	601	3.25
Ehu (squirrelfish snap.)	90	278	3.07
Multidens snapper	18	37	2.00
Kusakar's snapper	74	147	2.00
Emperors (misc.)	86	173	2.00
Reef fish (Assorted)	104	209	2.00
Lined surgeon	3,620	7,239	2.00
Striped bristletooth	767	1,534	2.00
Unicornfishes (misc.)	472	945	2.00
Squirrelfish	99	198	2.00
Parrotfishes	1,926	3,853	2.00
Inshore groupers	319	638	2.00
Mahimahi (dolphin)	4,195	8,126	1.94
Blue marlin	4,955	5,142	1.04
Sailfish	189	189	1.00
Rainbow runner	34	34	1.00
Wahoo	3,694	7,379	2.00
Skipjack tuna	1,659	1,375	0.83
Dogtooth tuna	9	12	1.30
Albacore	96,996	107,428	1.11
Yellowfin tuna	9,629	17,302	1.80
Bigeye tuna	646	991	1.53
Spiny lobster	190	761	4.00
** SUBTOTAL **	130,463	165,779	1.27

Table II.1.12

American Samoa November 1998 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc.)	152	306	2.01
Black jack	37	85	2.27
Barracudas	80	200	2.50
Bottomfish (Assorted)	9	18	2.00
Groupers (misc.)	20	43	2.15
Flagtail grouper	4	8	2.00
Tomato grouper	13	33	2.50
Blacktip grouper	5	10	2.00
Lunartail grouper	34	71	2.10
Blue lined snapper	73	148	2.03
Humpback snapper	3	8	3.00
Gray jobfish	25	50	2.00
Yellow opakapaka	16	33	2.12
Gindai (flower snap)	18	45	2.50
Lehi (silverjaw)	40	116	2.88
Onaga (longtail snapper)	412	1,517	3.68
Ehu (squirrelfish snap.)	278	865	3.11
Multidens snapper	8	17	2.00
Kusakar's snapper	34	68	2.00
Emperors (misc.)	30	61	2.00
Reef fish (Assorted)	59	119	2.00
Lined surgeon	2,330	4,661	2.00
Striped bristletooth	458	916	2.00
Unicornfishes (misc.)	122	243	2.00
Squirrelfish	73	154	2.10
Parrotfishes	1,202	2,404	2.00
Inshore groupers	210	424	2.02
Mahimahi (dolphin)	2,112	4,224	2.00
Swordfish	535	2,139	4.00
Blue marlin	1,702	2,112	1.24
Sailfish	523	1,047	2.00
Wahoo	1,315	2,545	1.94
Skipjack tuna	847	826	0.97
Dogtooth tuna	26	34	1.30
Albacore	95,601	86,284	0.90
Yellowfin tuna	5,408	9,585	1.77
Bigeye tuna	1,426	1,926	1.35
** SUBTOTAL **	115,242	123,342	1.07

Table II.1.13

American Samoa December 1998 Estimated Commercial Landings

Species	Pounds	Value	$/lb
Jacks (misc.)	183	369	2.02
Barracudas	108	270	2.50
Lunartail grouper	41	81	2.00
Humpback snapper	31	93	3.00
Gray jobfish	15	30	2.00
Yellow opakapaka	35	70	2.00
Lehi (silverjaw)	10	34	3.50
Onaga (longtail snapper)	1,513	5,410	3.58
Ehu (squirrelfish snap.)	588	2,059	3.50
Reef fish (Assorted)	100	200	2.00
Lined surgeon	1,304	2,607	2.00
Striped bristletooth	500	1,000	2.00
Unicornfishes (misc.)	93	185	2.00
Squirrelfish	37	74	2.00
Parrotfishes	1,022	2,044	2.00
Inshore groupers	174	348	2.00
Mahimahi (dolphin)	1,369	2,595	1.90
Blue marlin	3,672	3,672	1.00
Wahoo	1,453	2,898	1.99
Skipjack tuna	4,580	4,061	0.89
Albacore	51,800	34,084	0.66
Yellowfin tuna	2,319	4,466	1.93
Bigeye tuna	1,534	2,207	1.44
Spiny lobster	67	267	4.00
** SUBTOTAL **	72,547	69,126	0.95
** TOTAL **	1,323,776	1,644,837	1.24

Figure II.1.1

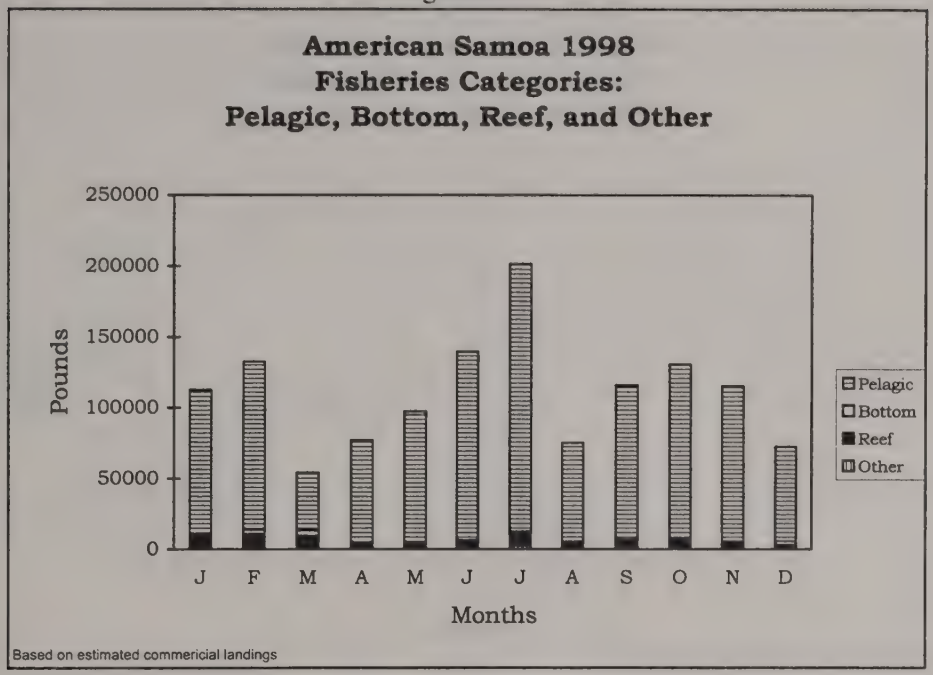


Figure II.1.2

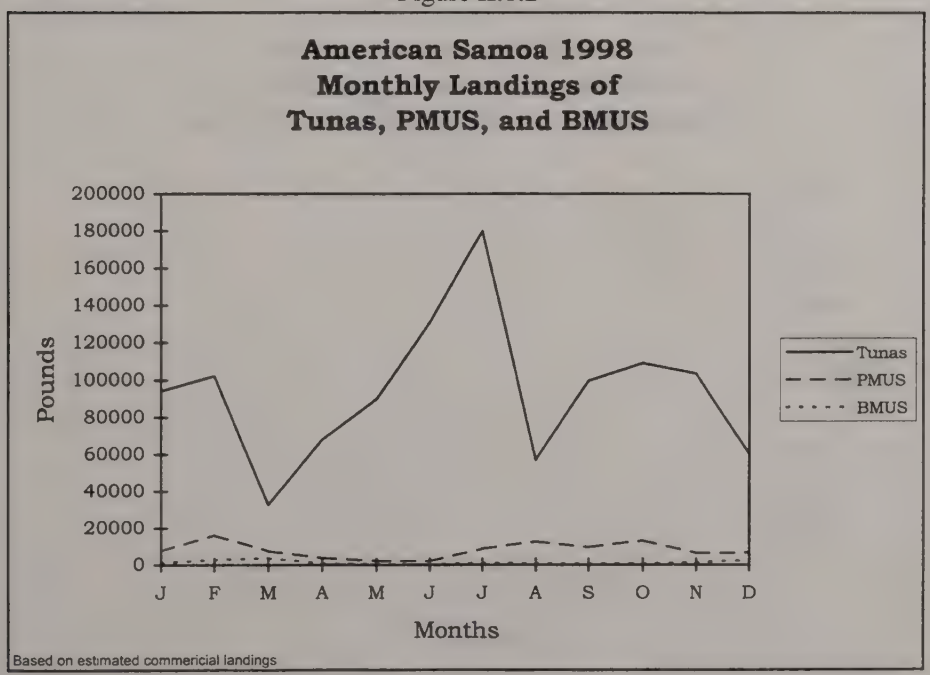


Figure II.1.3

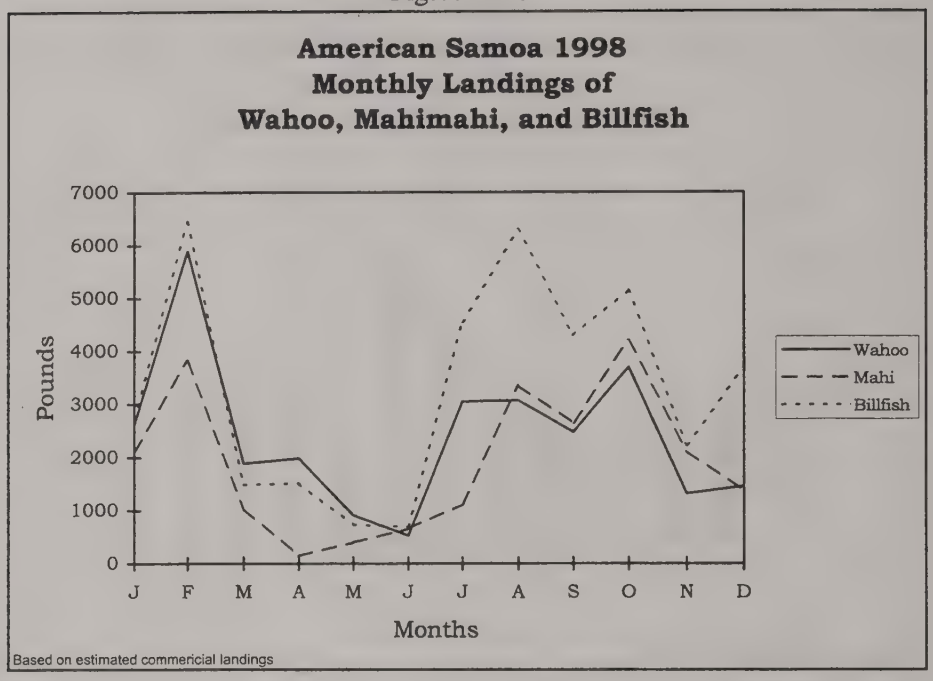


Figure II.1.4

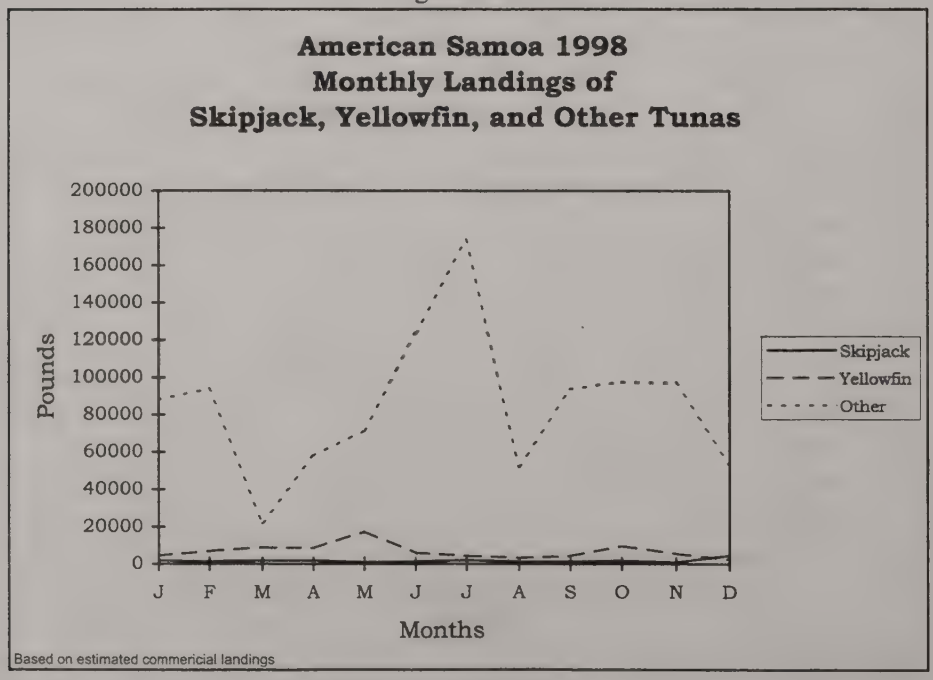


Figure II.2.1

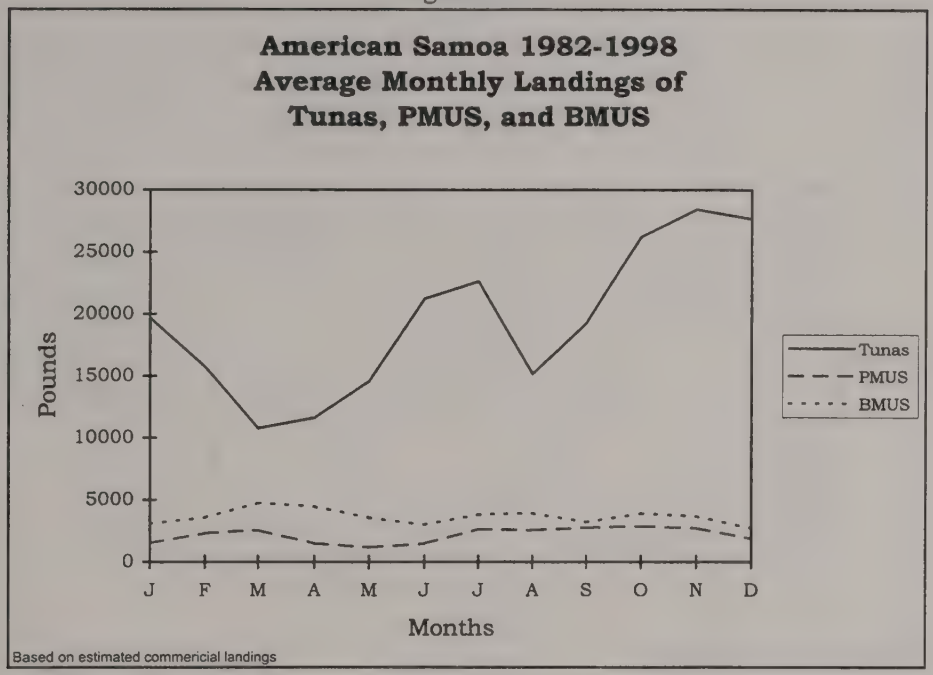
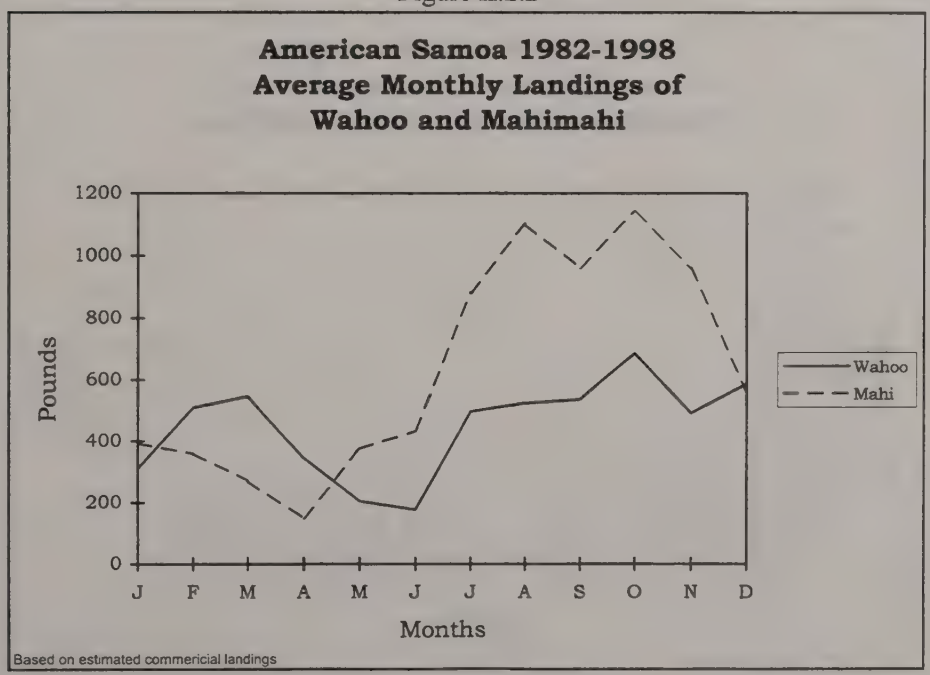


Figure II.2.2



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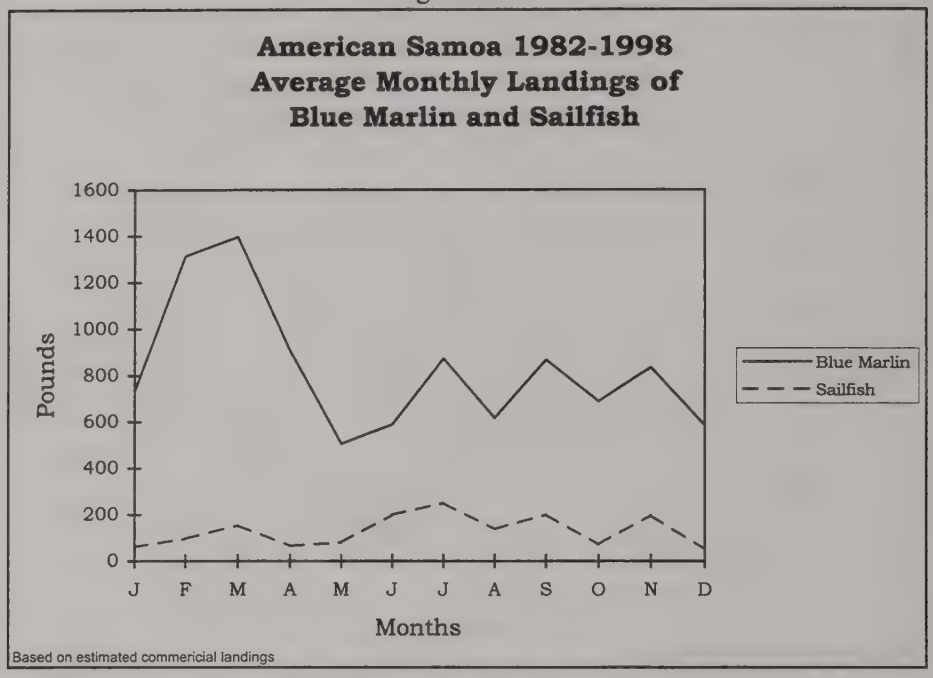

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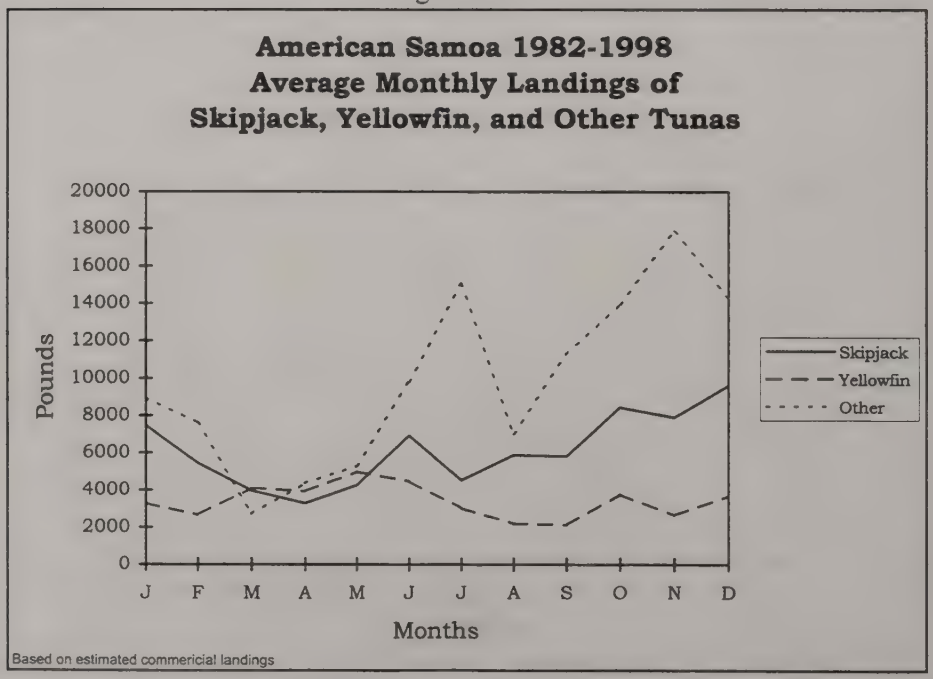


Figure II.2.5

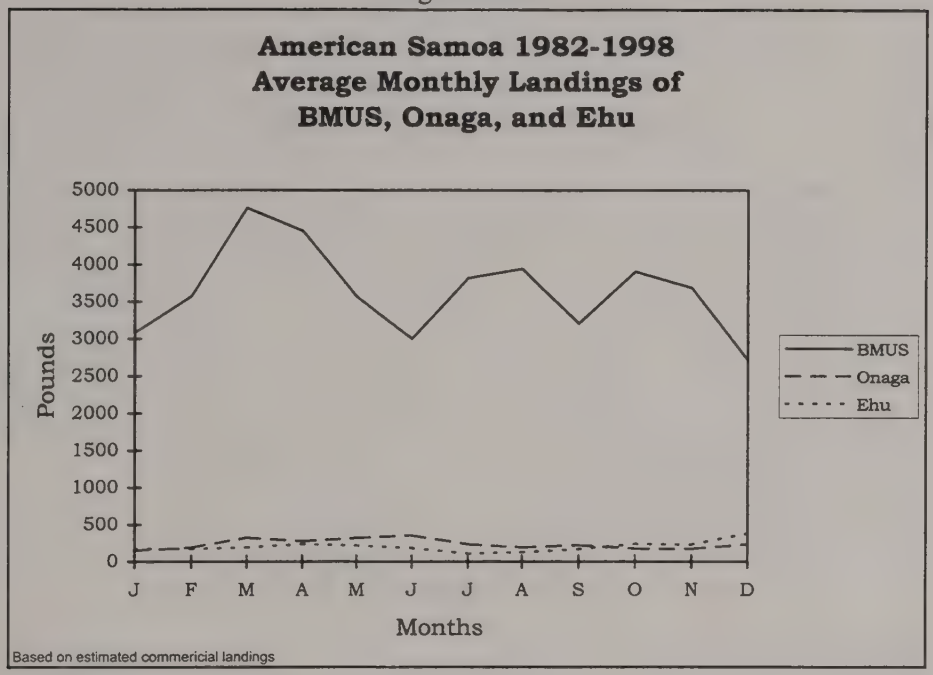


Figure II.3.1

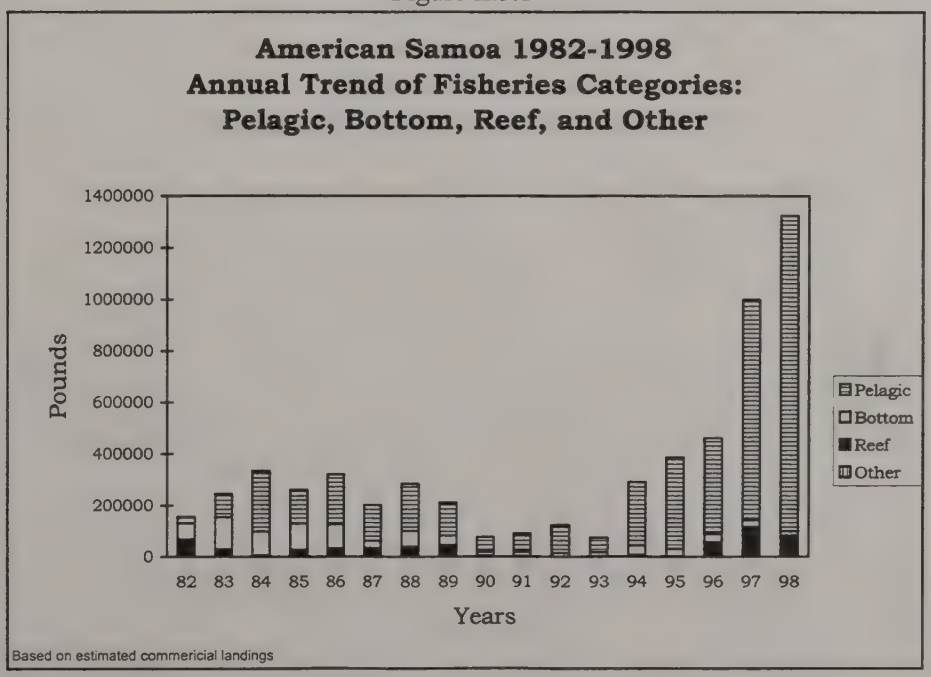


Figure II.3.2

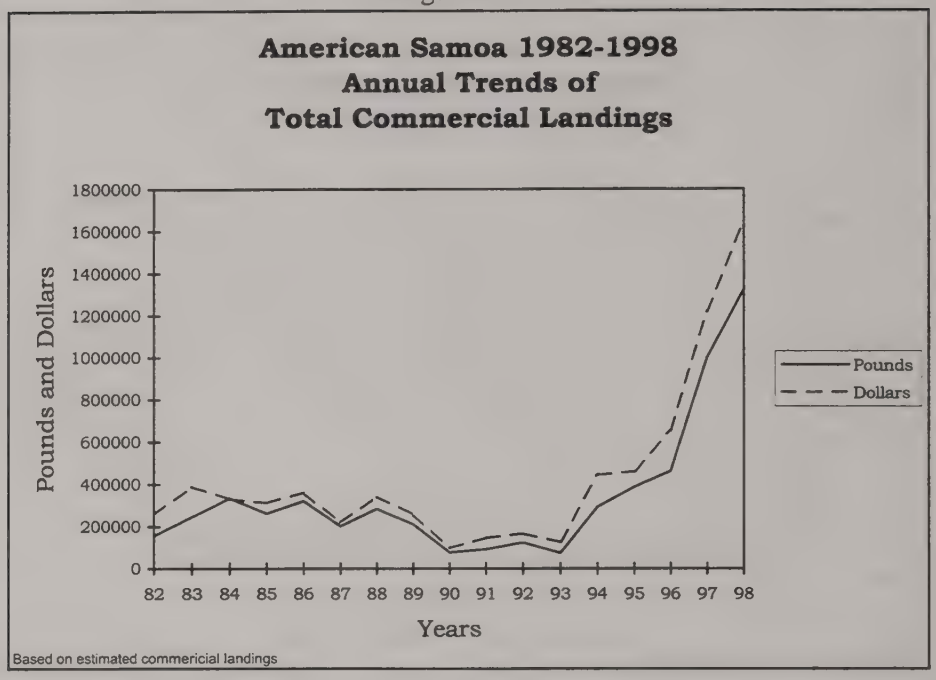


Figure II.3.3

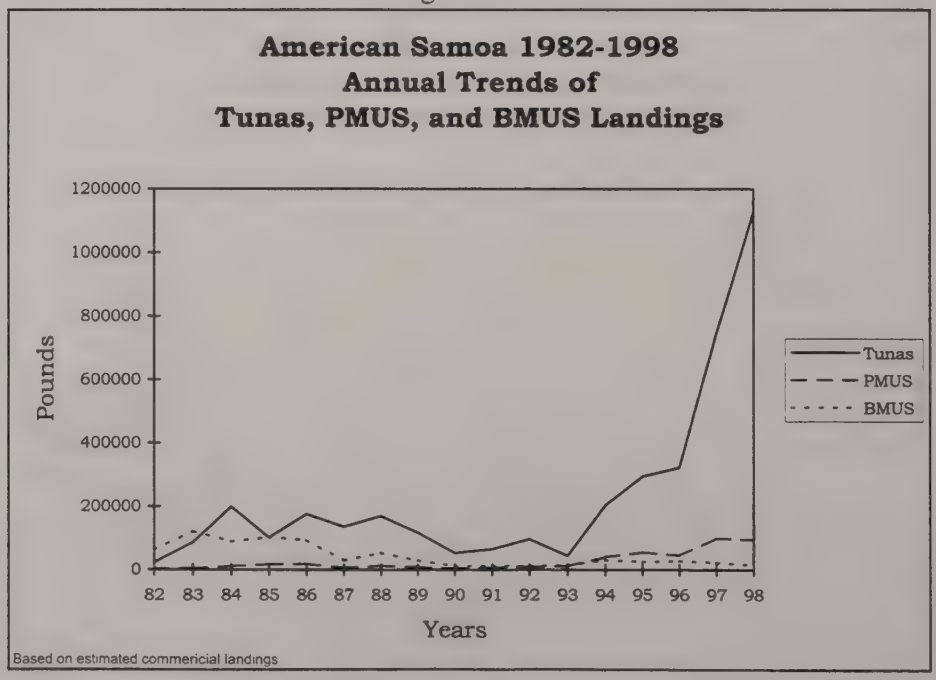


Figure II.3.4

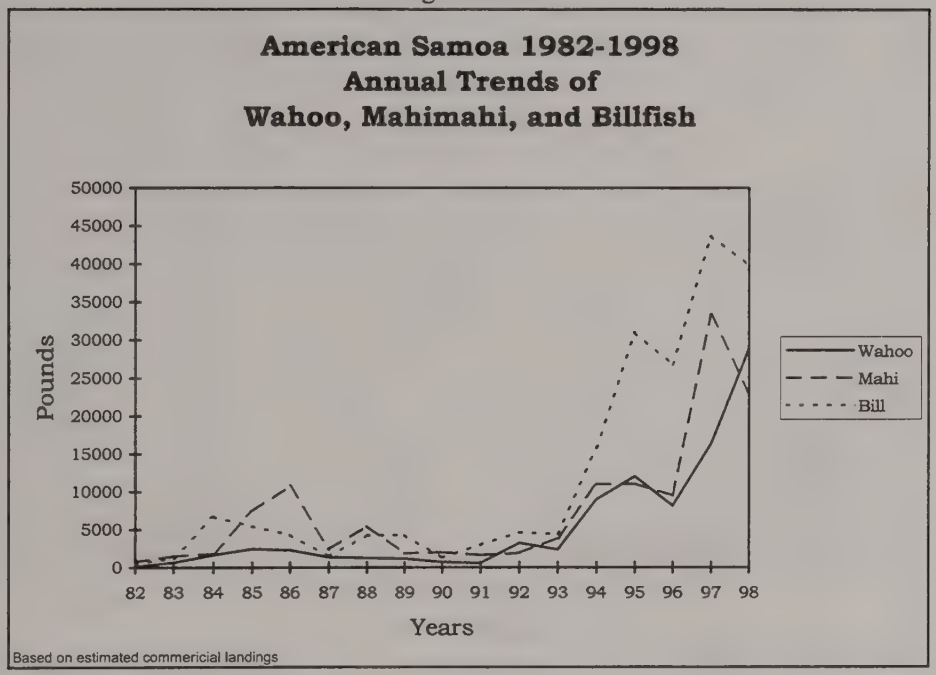


Figure II.3.5

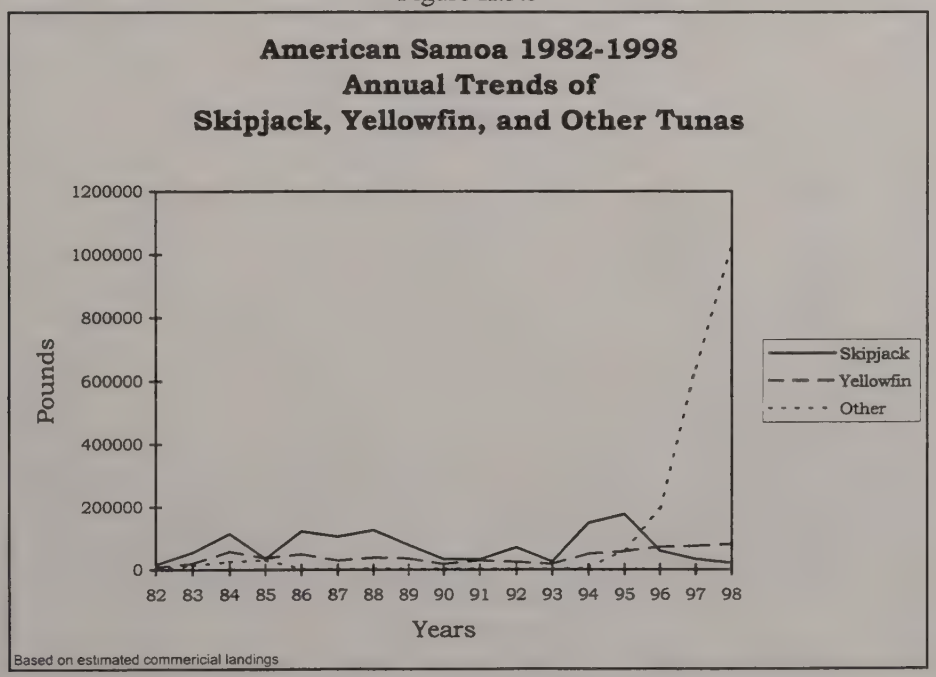
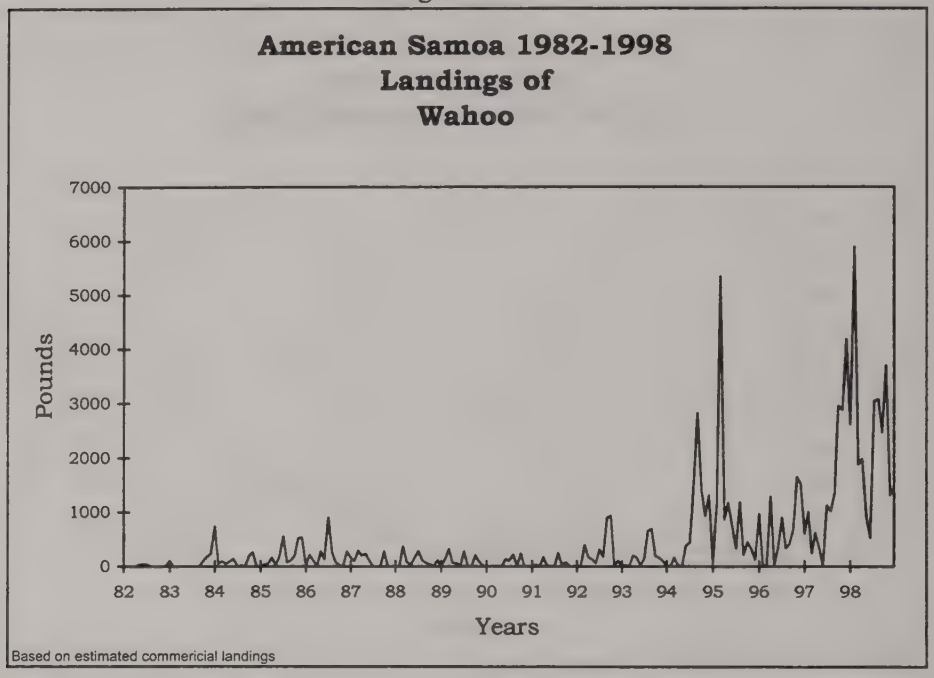


Figure II.4.1



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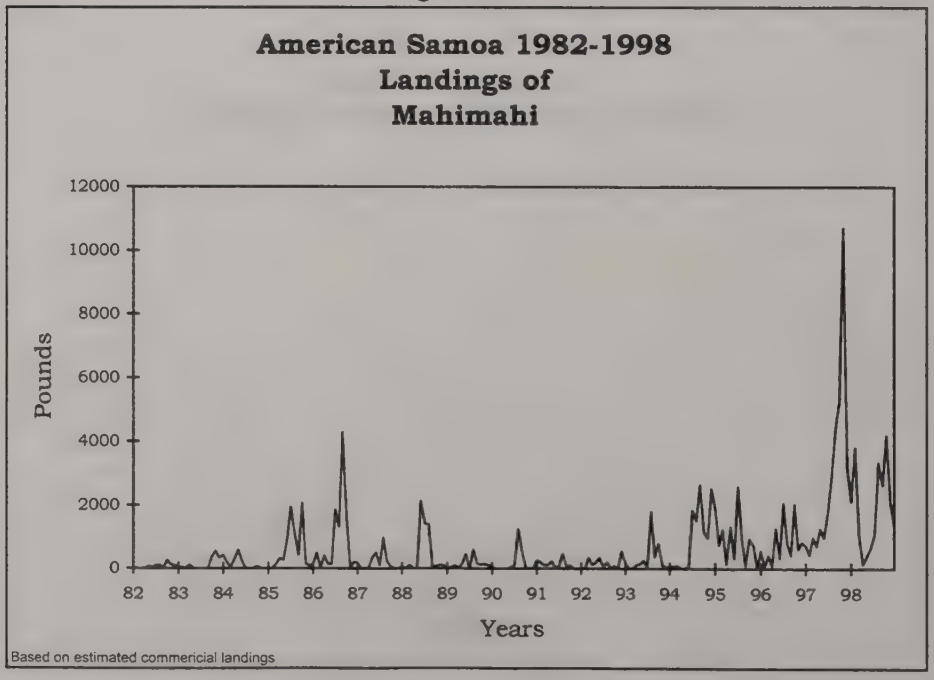


Figure II.4.3

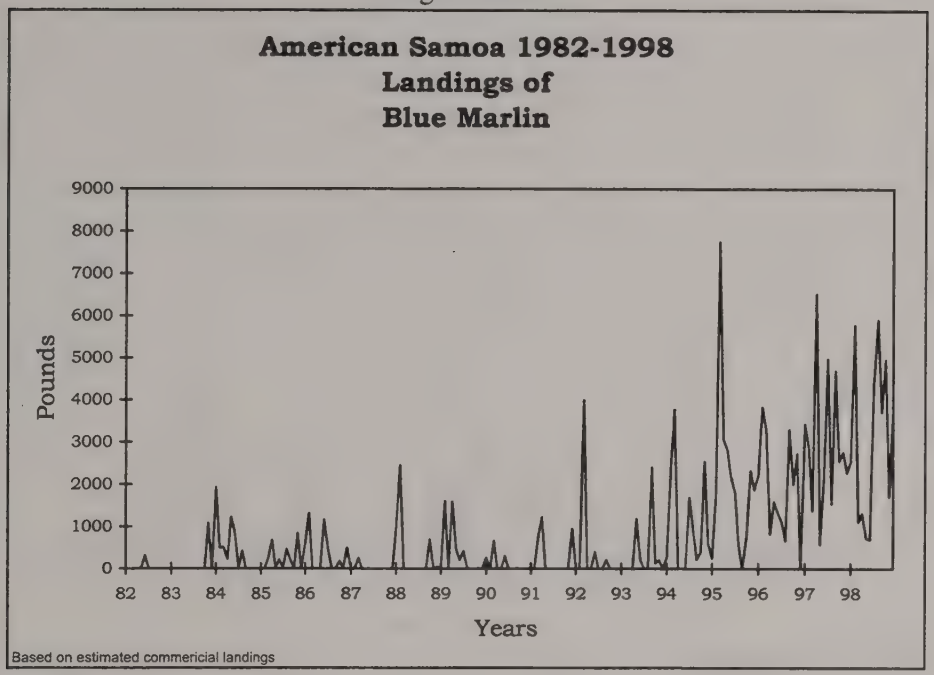
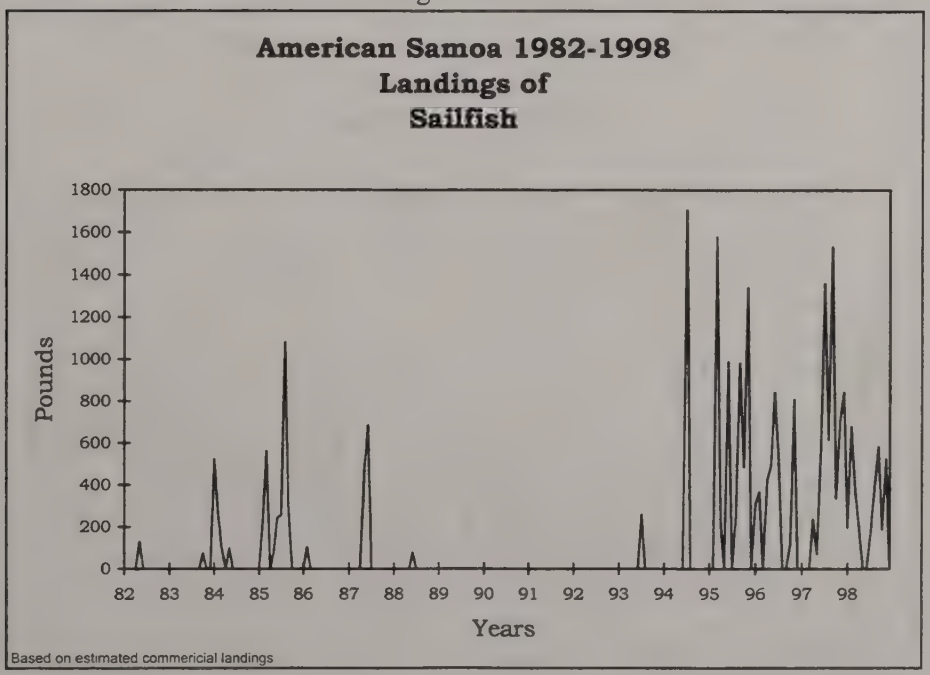


Figure II.4.4



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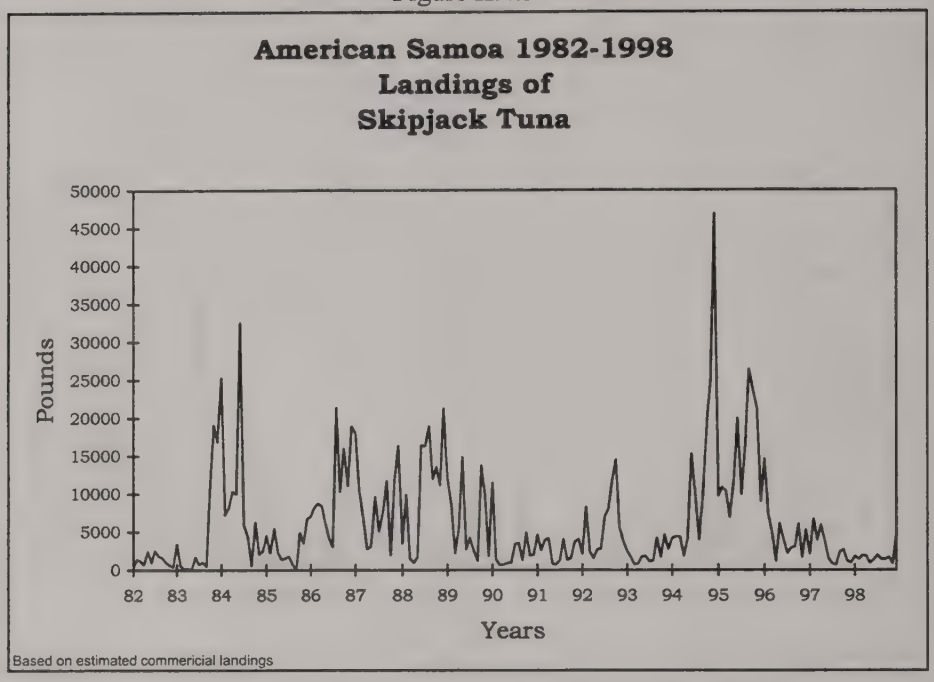
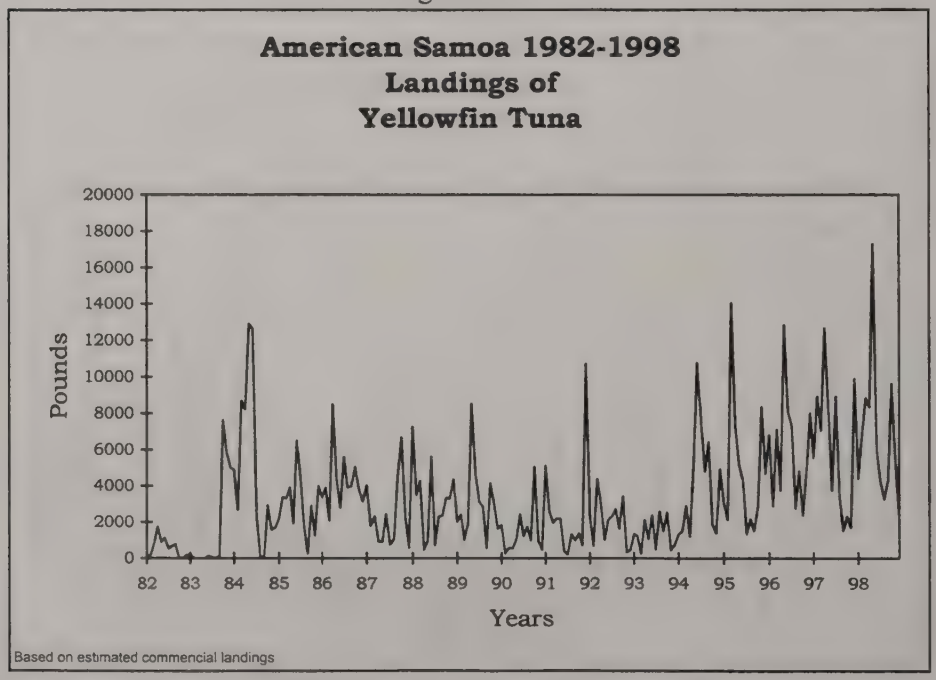


Figure II.4.6



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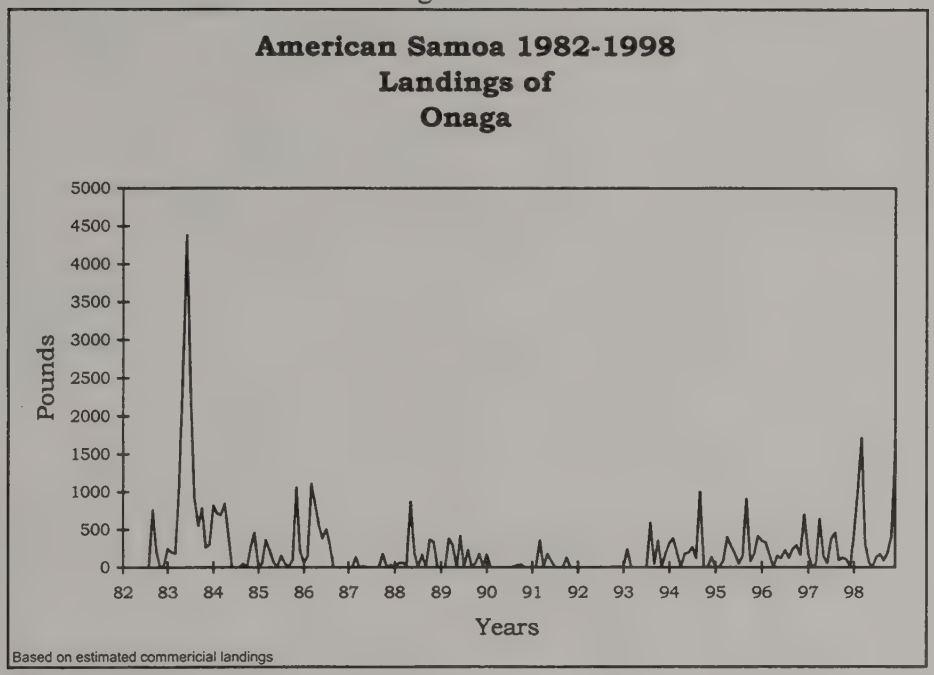
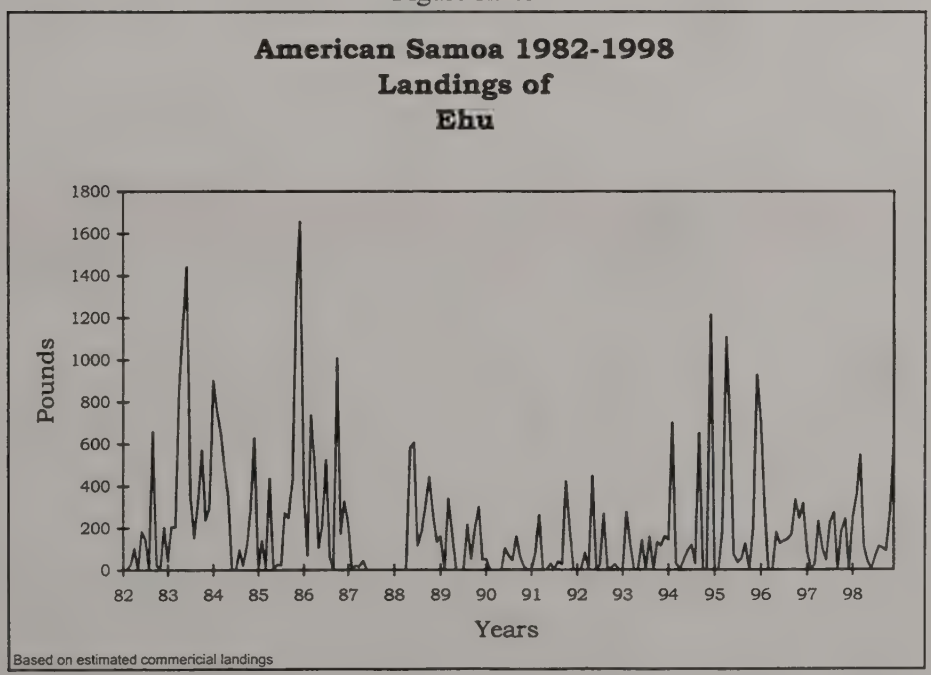


Figure II.4.8



COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS

Fishery Statistics 1998

COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS
1998 FISHERY STATISTICS

Compiled by

Division of Fish and Wildlife

and the

Western Pacific Fishery Information Network

August 2000

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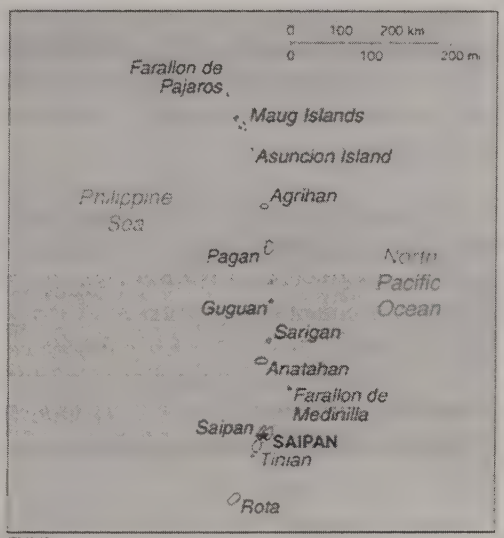
COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS
1998 FISHERY STATISTICS

INTRODUCTION

The Commonwealth of the Northern Mariana Islands (CNMI) comprises a string of islands located at about long. 145° E and extends northward from about lat. 14 to 21° N. Virtually all of the 68,000+ inhabitants of the CNMI live on the three main islands of Saipan, Rota, and Tinian, with the vast majority living on Saipan. CNMI's biggest industry is tourism.

The Division of Fish and Wildlife (DFW) has been collecting fishery statistics on the commercial fishing fleet of Saipan since the mid-1970's. In 1983, DFW also began collecting information on vessels transshipping tuna out of Tinian.



CNMI

source: <http://www.cia.gov/cia/publications/factbook/cq.html>; *The World Factbook 1999*

The chief domestic commercial fishery of the CNMI is a small boat, one-day troll fishery. Most of the boats are 12 to 24-foot outboard-powered, runabout-type vessels. However, a few larger boats are also used, and a small charter fleet is also developing. During 1998, 24 vessels were registered as "charter" for their primary use. In recent years, there has been a fairly rapid increase in the number of boats in the CNMI, and in 1998 131 boats were registered to participate in the commercial fisheries. Another 143 boats were registered as either part-time or full-time.

Trolling is by far the most common fishing method, but bottomfishing and reef fishing are also popular. Reef fish make up a significant portion of the total commercial catch and are an important component of the local diet. In recent years several larger boats started fishing more intensively for bottomfish around the islands north of Saipan. While the vast majority of the domestic catch is consumed locally, there have been some exports of fish to Guam, Hawaii, and most recently Japan. The one exception would be reef fish; an increasing amount is imported from other Pacific islands as local demand exceeds local supply.

In 1982 WPacFIN significantly improved data collecting and processing systems by providing computer hardware, software, and training. Since then numerous system upgrades and replacements have been implemented to keep up with changing technologies and the increasing demands for improved fisheries statistics.

DATA COLLECTING SYSTEM

DFW's principal method of collecting domestic commercial fisheries data is a dealer invoicing system, sometimes referred to as a "trip ticket" system. The DFW provides numbered two-part invoices to all purchasers of fresh fishery products (including hotels, restaurants, stores, fish markets, and roadside vendors). Dealers complete an invoice each time they purchase fish directly from fishermen, one copy going to their records and one copy to DFW.

Some advantages of this data collection method are that it is relatively inexpensive to implement and maintain, it is fairly easy to get complete coverage of the commercial fisheries, and DFW can provide feedback to dealers and fishermen to ensure data accuracy and continued cooperation.

Disadvantages include: dependency on non-DFW personnel to identify the catch and record the data, restrictions on the types of data that can be collected, education and cooperation of all fish purchasers are required, and recordings of fish actually sold to dealers are limited. Therefore, a potentially important portion of the total landings is unrecorded.

Since 1982 DFW has tried to minimize these disadvantages in several ways: 1) maintain a close working relationship with dealers; 2) add new dealers to their list and educate them; and 3) implement a creel survey to help estimate total catch, including recreational and subsistence catch.

The current system collects data from dealers in Saipan, where DFW estimates over 90% of all CNMI commercial landings are made. The DFW also estimates that the proportion of total commercial landings that have been recorded in the Saipan database since 1983 is about 90%. Therefore, the reported data summarized herein represents an estimated 80+% of the total commercial landings for CNMI. In mid-1999 this trip ticket invoice data collection program was expanded to Tinian and Rota as well, so data directly from those islands will be available in future volumes of this series.

Information collected from the fishermen includes the following:

- Date
- Buyer's name (dealer)
- Seller's name (fisherman)
- Species
- Weight (pounds)
- Price per pound
- Value
- Invoice number

These data elements are collected for all purchases of fishery products; however, species identification is frequently made only to a group level, especially for reef fish.

DATA PROCESSING SYSTEM

At the beginning of each month, a DFW employee visits each of the dealers on Saipan to collect the previous month's invoices, to resolve problems, and to answer any questions the dealers may have. The invoices are then returned to the office for an initial visual edit during the coding process and entered into the "Purchase" database. After the records are entered, reports are generated to help verify that all data were entered correctly. On a quarterly basis, copies of the database are sent to the Honolulu Laboratory, where the data are transferred to the central computer for additional verification before generating summary reports. These reports and databases are then ready for use by qualified WPacFIN participants.

DATA REPORTING SYSTEM

After all editing and quality control activities have been completed, monthly and annual summary reports by species are generated. Each monthly report contains a subtotal for the sum of all species for that month, and the December report also includes the annual total. Annual reports contain the total landings for each species and the total recorded landings for all species for the calendar year.

The following species, species groups, and abbreviations are used in the tables and graphs of CNMI's data:

I. Pelagic Management Unit Species (PMUS)

Although the Magnuson Fishery Conservation and Management Act of 1976 was amended in 1992 to include tunas in the Pacific PMUS (PPMUS), this report series will continue to specify tunas as a separate category from the PPMUS. The PMUS category in this report includes:

Mahimahi (dolphin)
Marlin
Shortbill spearfish
Sailfish
Wahoo
Sharks

II. Bottomfish Management Unit Species (BMUS)

Jacks (unclassified, but excluding bigeye scad)
Bottom fish (unclassified)
Ehu (red snapper)
Gindai (flower snapper)
Grouper (unclassified)

Kalekale (pink snapper)
Lehi (silverjaw snapper)
Onaga (red or longtail snapper)
Opakapaka (pink snapper)
Uku (gray snapper)
Emperorfish

III. Billfish

Marlin (probably all blue marlin but could also include the rarely landed striped and black marlin)
Shortbill spearfish
Sailfish

IV. Tunas

Tunas (unclassified)
Skipjack tuna
Yellowfin tuna
Dogtooth tuna

V. Other Tuna

The above tunas excluding skipjack and yellowfin tuna

VI. Fisheries Categories

A. Pelagics

All PMUS and tuna species plus the following:
Troll fish (unclassified)
Barracuda
Rainbow runner

B. Bottom Fish

Same as BMUS

C. Reef Fish

Reef fish (unclassified)
Giant wrasse
Rabbitfish (hitting, hitting feda, menahac, and sesjun)
Rudderfish
Squirrelfish
Parrotfish
Snapper
Surgeonfish
Unicornfish
Goatfish

D. Other

Miscellaneous
Mullet
Milkfish
Crabs (unclassified)
Lobster
Octopus
Turtle
Bigeye scad
Eels
Invertebrates (unclassified)
Coconut crab
Shrimp
Squid
Seaweeds
Imported

Table III.1.1

CNMI 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Assorted	29	73	2.50
Miscellaneous	185	370	2.00
Bigeye scad (atulai)	412	1,353	3.29
Jacks	1,904	6,332	3.33
Mullet	100	249	2.50
Bottom fish	5,881	16,224	2.76
Ehu (red snapper)	158	532	3.38
Gindai (flower snap)	1,036	3,499	3.38
Grouper	6,291	18,739	2.98
Kalekale (pink snap)	99	332	3.35
Onaga (red snapper)	12,126	52,470	4.33
Opakapaka (pink snp)	2,183	7,015	3.21
Silver-mouth	4,822	19,243	3.99
Amberjack	254	841	3.32
Reef fish	163,604	398,383	2.44
Rabbitfish (hitting)	4,722	15,327	3.25
Emperor (mafute)	11,082	31,027	2.80
Squirrelfish	2,024	4,068	2.01
Parrotfish	1,093	3,410	3.12
Snapper	1,397	3,865	2.77
Surgeonfish	26	65	2.50
Surgeon/hagnon	53	140	2.67
Unicornfish	168	420	2.50
Goatfish	1,358	2,947	2.17
Troll fish	740	1,521	2.06
Barracuda	99	197	1.99
Mahimahi (dolphin)	20,529	44,413	2.16
Marlin	3,361	5,968	1.78
Sailfish	83	168	2.02
Rainbow runner	603	1,507	2.50
Wahoo	5,039	11,632	2.31
Tunas	2,213	4,629	2.09
Skipjack tuna	133,819	267,718	2.00
Dogtooth tuna	14,426	34,775	2.41
Yellowfin tuna	11,656	25,559	2.19
Invertebrates	146	766	5.26
Spiny lobster	4,469	24,140	5.40
Octopus	611	1,694	2.77
** TOTAL **	418,798	1,011,610	2.42

CNMI January 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	141	494	3.51
Jacks	18	44	2.50
Bottom fish	388	1,064	2.74
Gindai (flower snap)	9	38	4.50
Grouper	393	1,753	4.46
Onaga (red snapper)	1,258	5,968	4.74
Opakapaka (pink snp)	60	194	3.23
Silver-mouth	41	169	4.11
Reef fish	17,387	44,259	2.55
Rabbitfish (hitting)	271	880	3.25
Emperor (mafute)	278	781	2.81
Squirrelfish	1,948	3,896	2.00
Parrotfish	14	42	3.00
Surgeonfish	16	40	2.50
Goatfish	511	1,036	2.03
Troll fish	38	75	2.00
Barracuda	67	117	1.75
Mahimahi (dolphin)	2,374	5,009	2.11
Rainbow runner	45	114	2.53
Wahoo	405	960	2.37
Tunas	756	1,676	2.22
Skipjack tuna	6,349	14,271	2.25
Dogtooth tuna	344	860	2.50
Yellowfin tuna	1,860	5,020	2.70
Spiny lobster	271	1,897	7.00
Octopus	83	207	2.50
** SUBTOTAL **	35,321	90,861	2.57

Table III.1.3

CNMI February 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	16	52	3.25
Jacks	155	560	3.61
Bottom fish	139	424	3.06
Grouper	759	2,276	3.00
Onaga (red snapper)	214	963	4.50
Opakapaka (pink snp)	15	53	3.50
Reef fish	23,016	58,694	2.55
Rabbitfish (hitting)	438	1,422	3.25
Emperor (mafute)	173	482	2.78
Parrotfish	134	464	3.46
Snapper	123	337	2.75
Goatfish	572	1,168	2.04
Troll fish	180	396	2.20
Mahimahi (dolphin)	2,998	6,459	2.15
Rainbow runner	56	154	2.78
Wahoo	944	2,118	2.24
Tunas	143	358	2.51
Skipjack tuna	10,777	24,147	2.24
Dogtooth tuna	180	406	2.25
Yellowfin tuna	652	1,538	2.36
Spiny lobster	427	2,625	6.15
Octopus	7	17	2.50
** SUBTOTAL **	42,115	105,109	2.50

Table III.1.4

CNMI March 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	27	88	3.25
Jacks	38	114	3.00
Bottom fish	124	309	2.50
Gindai (flower snap)	36	124	3.50
Grouper	386	1,158	3.00
Onaga (red snapper)	335	1,490	4.45
Opakapaka (pink snp)	38	105	2.75
Silver-mouth	100	450	4.50
Reef fish	20,130	48,634	2.42
Rabbitfish (hitting)	332	1,098	3.31
Emperor (mafute)	886	2,333	2.63
Parrotfish	402	1,205	3.00
Snapper	80	220	2.75
Unicornfish	82	205	2.49
Troll fish	83	208	2.50
Mahimahi (dolphin)	3,634	8,076	2.22
Rainbow runner	7	19	2.75
Wahoo	1,194	2,595	2.17
Tunas	202	418	2.07
Skipjack tuna	14,149	29,256	2.07
Dogtooth tuna	901	2,211	2.45
Yellowfin tuna	550	1,207	2.19
Spiny lobster	448	2,805	6.26
Octopus	60	151	2.50
** SUBTOTAL **	44,222	104,475	2.36

Table III.1.5

CNMI April 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Assorted	29	73	2.50
Miscellaneous	185	370	2.00
Bigeye scad (atulai)	102	352	3.45
Jacks	173	604	3.50
Mullet	15	36	2.50
Bottom fish	176	616	3.50
Gindai (flower snap)	130	453	3.50
Grouper	527	1,581	3.00
Onaga (red snapper)	750	3,375	4.50
Opakapaka (pink snp)	191	655	3.43
Silver-mouth	62	277	4.50
Reef fish	17,145	42,319	2.47
Rabbitfish (hitting)	197	640	3.25
Emperor (mafute)	198	661	3.35
Parrotfish	74	232	3.14
Snapper	109	300	2.75
Troll fish	10	35	3.50
Mahimahi (dolphin)	5,824	12,833	2.20
Marlin	265	509	1.92
Rainbow runner	39	99	2.53
Wahoo	401	944	2.35
Skipjack tuna	14,511	30,758	2.12
Dogtooth tuna	671	1,617	2.41
Yellowfin tuna	396	873	2.21
Invertebrates	42	274	6.50
Spiny lobster	435	2,261	5.20
Octopus	26	64	2.50
** SUBTOTAL **	42,679	102,810	2.41

Table III.1.6

CNMI May 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Mullet	23	58	2.50
Bottom fish	104	255	2.45
Gindai (flower snap)	55	193	3.50
Grouper	402	1,169	2.91
Onaga (red snapper)	3,698	16,463	4.45
Opakapaka (pink snp)	165	559	3.40
Silver-mouth	154	691	4.50
Amberjack	42	104	2.50
Reef fish	12,738	29,891	2.35
Rabbitfish (hitting)	104	338	3.25
Emperor (mafute)	1,566	5,303	3.39
Parrotfish	44	153	3.50
Snapper	366	1,007	2.75
Goatfish	130	376	2.90
Mahimahi (dolphin)	2,585	5,852	2.26
Marlin	432	762	1.76
Sailfish	3	8	2.50
Rainbow runner	32	103	3.26
Wahoo	471	1,102	2.34
Tunas	13	23	1.75
Skipjack tuna	10,771	22,164	2.06
Dogtooth tuna	2,797	6,874	2.46
Yellowfin tuna	853	1,842	2.16
Invertebrates	64	308	4.85
Spiny lobster	536	2,678	5.00
Octopus	32	80	2.50
** SUBTOTAL **	38,174	98,355	2.58

Table III.1.7

CNMI June 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Jacks	398	1,359	3.42
Mullet	5	13	2.50
Bottom fish	310	924	2.98
Ehu (red snapper)	15	38	2.50
Gindai (flower snap)	102	355	3.50
Grouper	1,117	3,073	2.75
Onaga (red snapper)	674	2,999	4.45
Opakapaka (pink snp)	163	551	3.39
Silver-mouth	225	990	4.40
Amberjack	43	151	3.50
Reef fish	16,664	38,544	2.31
Rabbitfish (hitting)	188	609	3.25
Emperor (mafute)	1,198	3,611	3.01
Squirrelfish	34	94	2.75
Parrotfish	38	110	2.91
Snapper	147	404	2.76
Goatfish	26	72	2.75
Troll fish	10	25	2.50
Mahimahi (dolphin)	582	1,200	2.06
Marlin	300	525	1.75
Rainbow runner	84	217	2.60
Wahoo	237	572	2.42
Skipjack tuna	11,738	23,693	2.02
Dogtooth tuna	2,795	6,899	2.47
Yellowfin tuna	1,030	2,003	1.94
Invertebrates	32	128	4.00
Spiny lobster	524	2,677	5.11
Octopus	41	115	2.79
** SUBTOTAL **	38,715	91,946	2.37

Table III.1.8

CNMI July 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Jacks	285	844	2.97
Bottom fish	465	1,180	2.54
Ehu (red snapper)	7	23	3.50
Gindai (flower snap)	242	847	3.50
Grouper	663	1,797	2.71
Kalekale (pink snap)	20	55	2.75
Onaga (red snapper)	538	2,331	4.34
Opakapaka (pink snp)	144	459	3.19
Silver-mouth	406	1,743	4.30
Reef fish	11,279	25,436	2.26
Rabbitfish (hitting)	204	658	3.22
Emperor (mafute)	2,183	5,610	2.57
Parrotfish	47	141	3.04
Snapper	124	340	2.75
Surgeonfish	10	25	2.50
Goatfish	20	45	2.25
Troll fish	48	80	1.67
Mahimahi (dolphin)	162	409	2.53
Marlin	613	1,063	1.73
Rainbow runner	97	242	2.49
Wahoo	83	208	2.50
Skipjack tuna	13,062	25,876	1.98
Dogtooth tuna	2,107	5,260	2.50
Yellowfin tuna	1,506	3,270	2.17
Spiny lobster	603	2,927	4.85
Octopus	30	75	2.50
** SUBTOTAL **	34,945	80,941	2.32

Table III.1.9

CNMI August 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	87	255	2.93
Jacks	112	292	2.62
Mullet	38	95	2.50
Bottom fish	777	2,023	2.60
Grouper	430	1,142	2.66
Onaga (red snapper)	187	696	3.71
Opakapaka (pink snp)	239	642	2.69
Silver-mouth	536	1,502	2.80
Reef fish	9,971	22,817	2.29
Rabbitfish (hitting)	316	1,026	3.25
Emperor (mafute)	1,543	4,007	2.60
Parrotfish	36	103	2.89
Surgeon/hagnon	17	43	2.50
Unicornfish	86	215	2.50
Goatfish	100	251	2.50
Troll fish	283	526	1.86
Mahimahi (dolphin)	25	50	2.00
Marlin	454	776	1.71
Sailfish	80	160	2.00
Rainbow runner	13	29	2.25
Wahoo	302	645	2.13
Skipjack tuna	14,783	27,949	1.89
Dogtooth tuna	510	979	1.92
Yellowfin tuna	521	1,035	1.99
Spiny lobster	312	1,537	4.92
Octopus	54	145	2.68
** SUBTOTAL **	31,813	68,939	2.17

Table III.1.10

CNMI September 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	29	80	2.75
Mullet	19	48	2.50
Bottom fish	899	2,268	2.52
Ehu (red snapper)	17	54	3.25
Gindai (flower snap)	85	234	2.75
Grouper	98	253	2.59
Onaga (red snapper)	434	1,653	3.81
Opakapaka (pink snp)	145	402	2.77
Silver-mouth	675	1,806	2.68
Reef fish	9,499	22,172	2.33
Rabbitfish (hitting)	926	3,007	3.25
Emperor (mafute)	1,012	2,607	2.58
Squirrelfish	7	18	2.50
Parrotfish	59	195	3.30
Troll fish	30	75	2.50
Mahimahi (dolphin)	60	116	1.93
Marlin	413	718	1.74
Rainbow runner	69	129	1.86
Wahoo	229	528	2.31
Tunas	28	42	1.50
Skipjack tuna	13,084	24,123	1.84
Dogtooth tuna	56	121	2.17
Yellowfin tuna	1,125	2,333	2.07
Spiny lobster	665	3,667	5.51
Octopus	60	159	2.68
** SUBTOTAL **	29,722	66,807	2.25

Table III.1.11

CNMI October 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Bigeye scad (atulai)	10	33	3.25
Jacks	345	1,208	3.50
Bottom fish	1,204	3,394	2.82
Ehu (red snapper)	9	30	3.50
Gindai (flower snap)	125	368	2.94
Grouper	487	1,449	2.98
Onaga (red snapper)	1,899	7,065	3.72
Opakapaka (pink snp)	248	762	3.07
Silver-mouth	171	699	4.09
Amberjack	117	410	3.50
Reef fish	6,722	16,408	2.44
Rabbitfish (hitting)	680	2,196	3.23
Emperor (mafute)	1,124	2,835	2.52
Parrotfish	31	92	3.00
Snapper	78	220	2.82
Barracuda	32	80	2.50
Mahimahi (dolphin)	287	584	2.03
Marlin	693	1,280	1.85
Rainbow runner	70	145	2.06
Wahoo	89	223	2.50
Tunas	174	329	1.89
Skipjack tuna	8,555	15,509	1.81
Dogtooth tuna	1,659	3,831	2.31
Yellowfin tuna	1,152	2,204	1.91
Spiny lobster	102	297	2.92
Octopus	83	208	2.50
** SUBTOTAL **	26,143	61,853	2.37

Table III.1.12

CNMI November 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Jacks	187	627	3.35
Bottom fish	183	532	2.91
Ehu (red snapper)	23	81	3.50
Gindai (flower snap)	6	19	3.50
Grouper	352	1,056	3.00
Onaga (red snapper)	119	508	4.29
Opakapaka (pink snp)	44	139	3.16
Silver-mouth	153	628	4.10
Amberjack	19	62	3.25
Reef fish	8,647	22,082	2.55
Rabbitfish (hitting)	579	1,869	3.22
Emperor (mafute)	607	1,994	3.28
Parrotfish	87	252	2.89
Snapper	203	557	2.75
Troll fish	58	102	1.75
Mahimahi (dolphin)	384	737	1.92
Marlin	112	197	1.77
Rainbow runner	45	96	2.15
Wahoo	233	521	2.23
Skipjack tuna	9,933	18,413	1.85
Dogtooth tuna	484	1,107	2.29
Yellowfin tuna	1,530	3,060	2.00
Invertebrates	8	55	7.00
Spiny lobster	32	154	4.86
Octopus	92	229	2.50
** SUBTOTAL **	24,116	55,074	2.28

Table III.1.13

CNMI December 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Jacks	195	683	3.50
Bottom fish	1,114	3,236	2.90
Ehu (red snapper)	88	308	3.50
Gindai (flower snap)	248	868	3.50
Grouper	679	2,035	3.00
Kalekale (pink snap)	79	277	3.50
Onaga (red snapper)	2,022	8,959	4.43
Opakapaka (pink snp)	732	2,495	3.41
Silver-mouth	2,301	10,290	4.47
Amberjack	33	116	3.50
Reef fish	10,406	27,128	2.61
Rabbitfish (hitting)	487	1,584	3.25
Emperor (mafute)	315	805	2.56
Squirrelfish	35	61	1.75
Parrotfish	130	422	3.26
Snapper	169	481	2.85
Surgeon/hagnon	36	98	2.75
Mahimahi (dolphin)	1,616	3,089	1.91
Marlin	80	140	1.75
Rainbow runner	47	160	3.39
Wahoo	452	1,218	2.69
Tunas	897	1,784	1.99
Skipjack tuna	6,109	11,560	1.89
Dogtooth tuna	1,925	4,613	2.40
Yellowfin tuna	484	1,175	2.43
Spiny lobster	114	615	5.39
Octopus	44	245	5.56
** SUBTOTAL **	30,834	84,441	2.74
** TOTAL **	418,798	1,011,610	2.42

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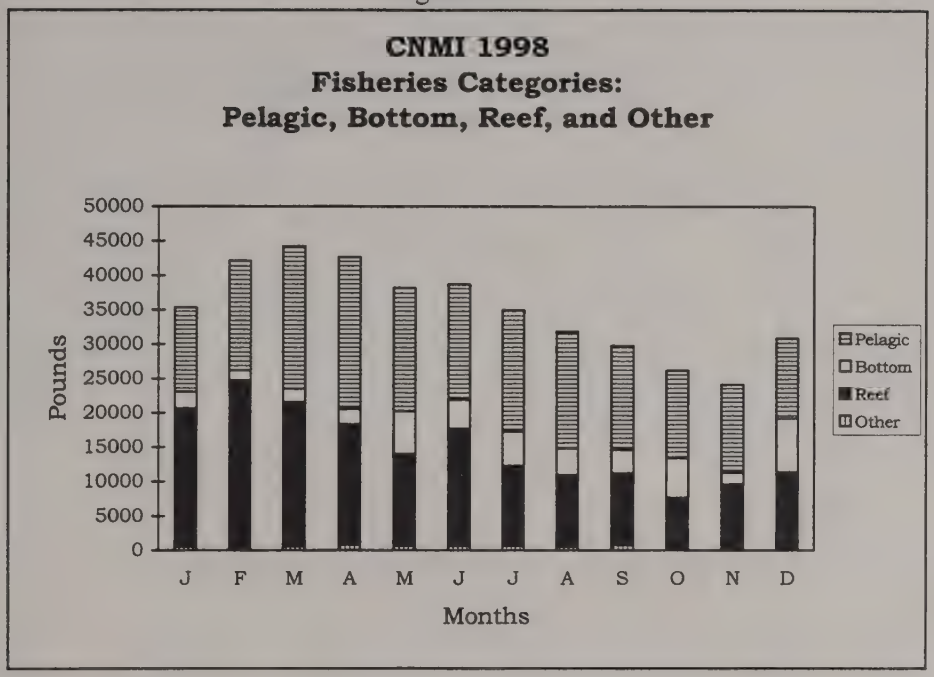

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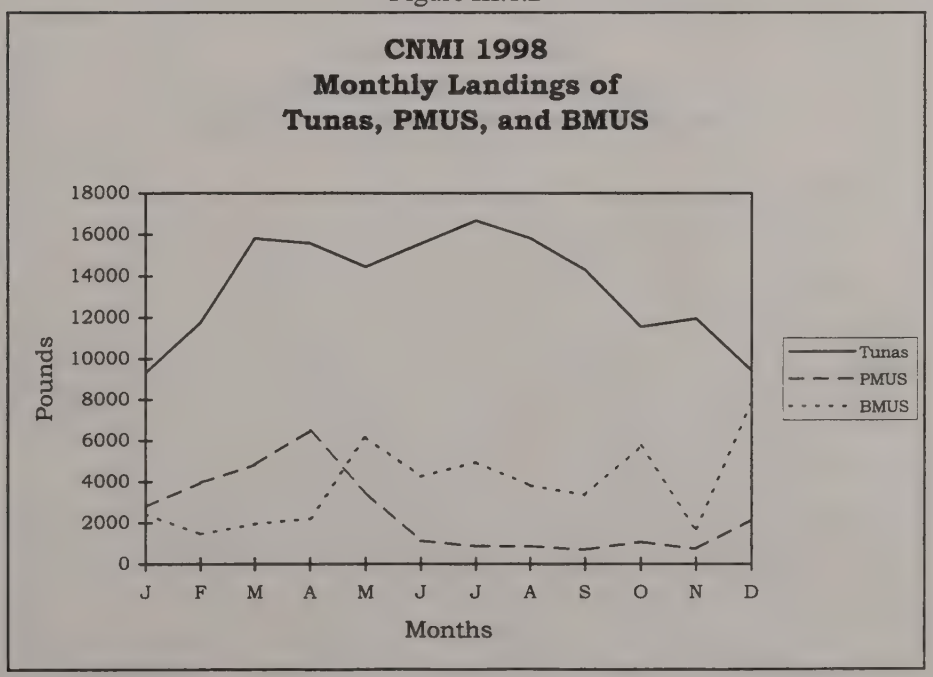

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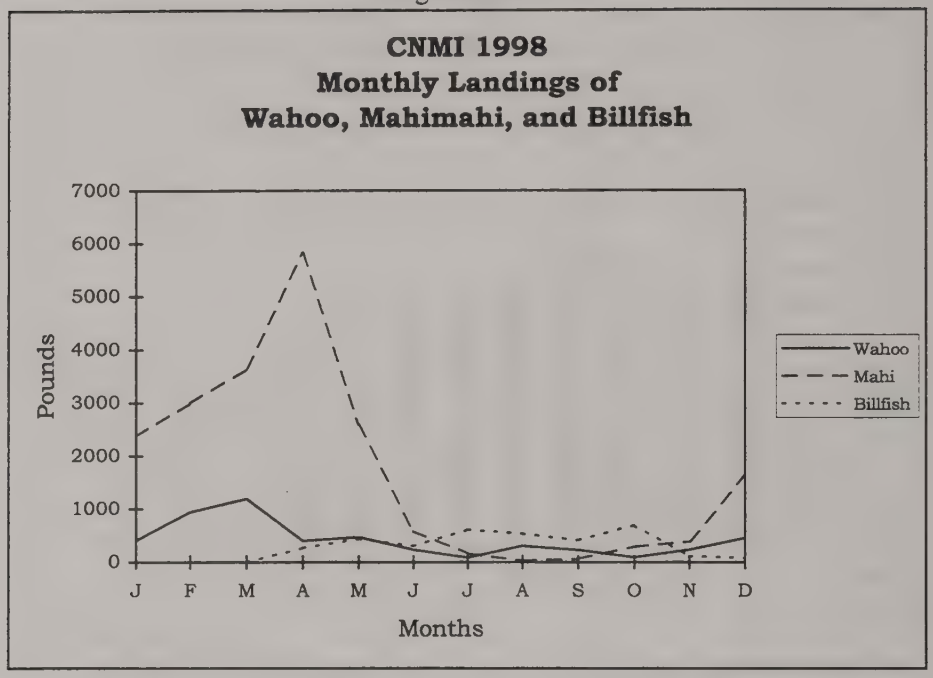

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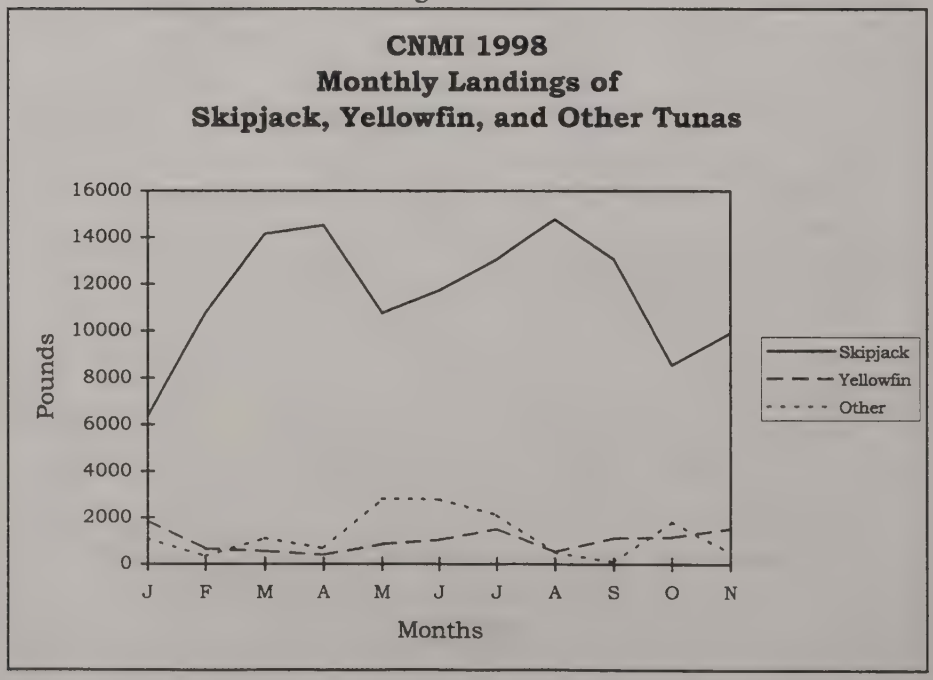

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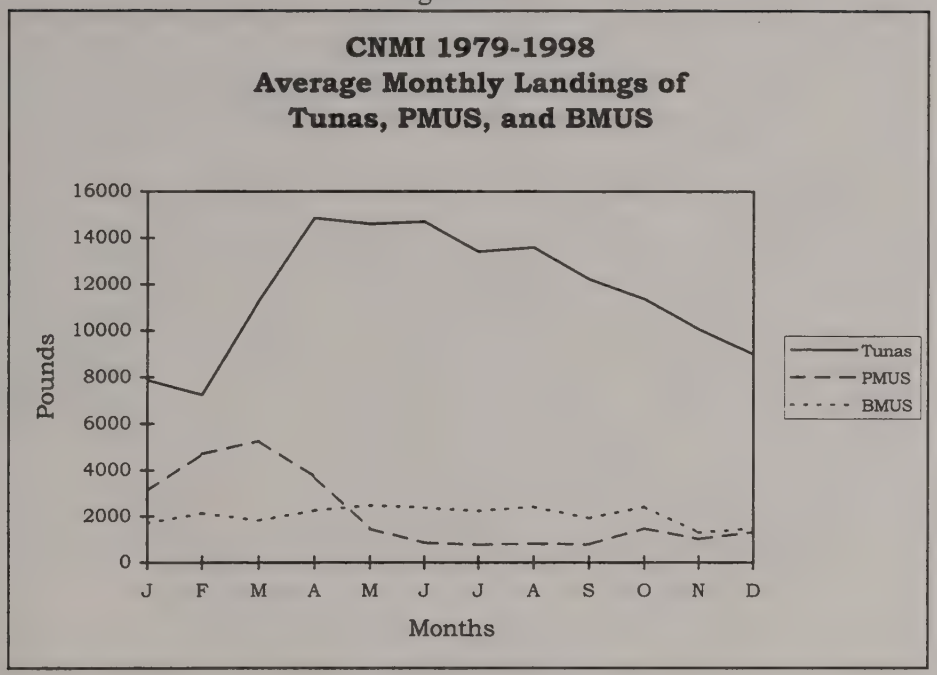

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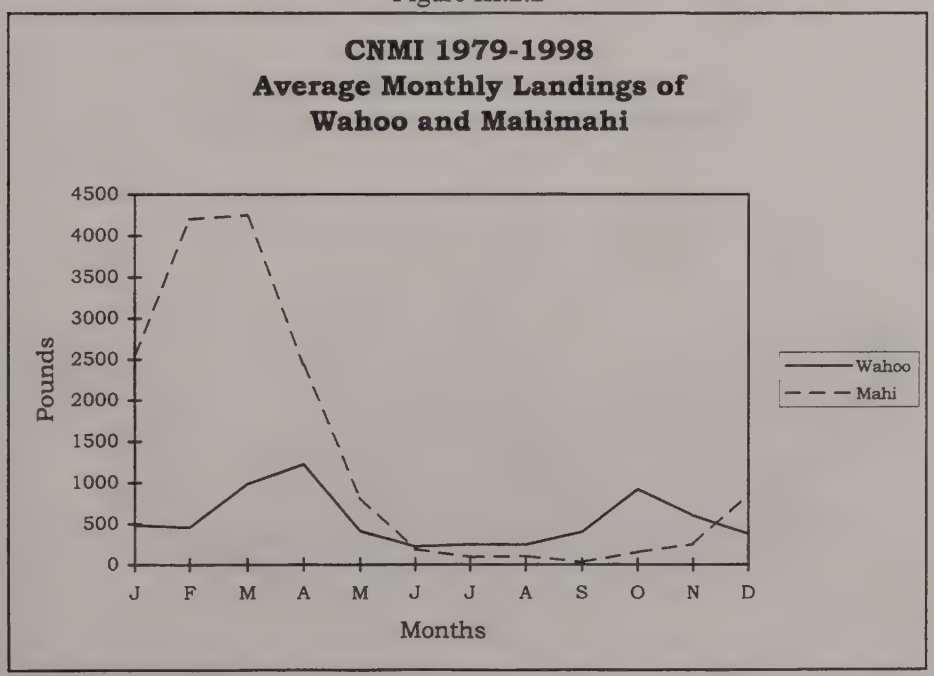

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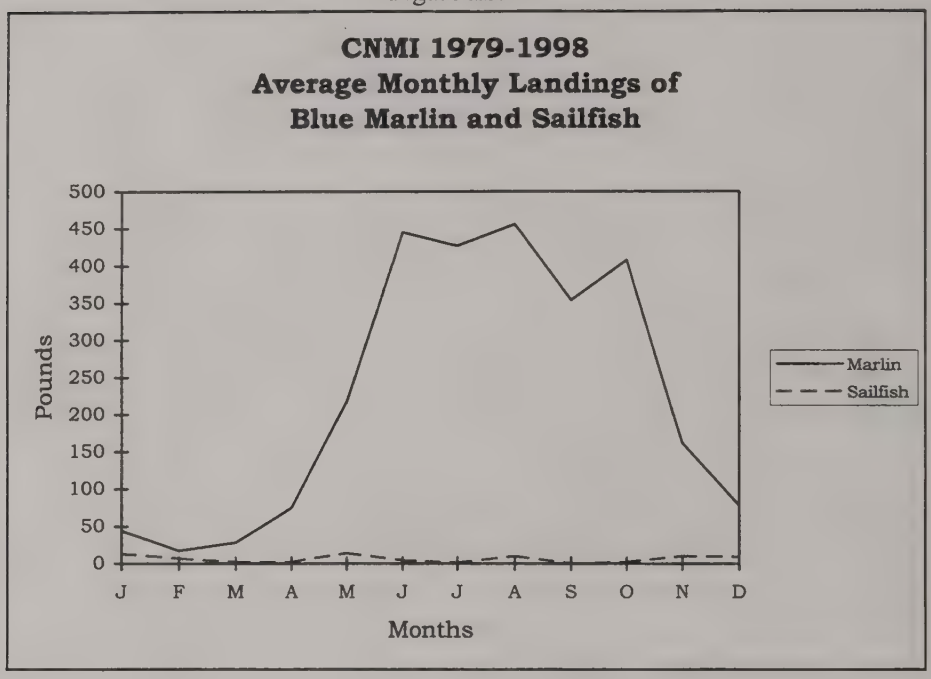

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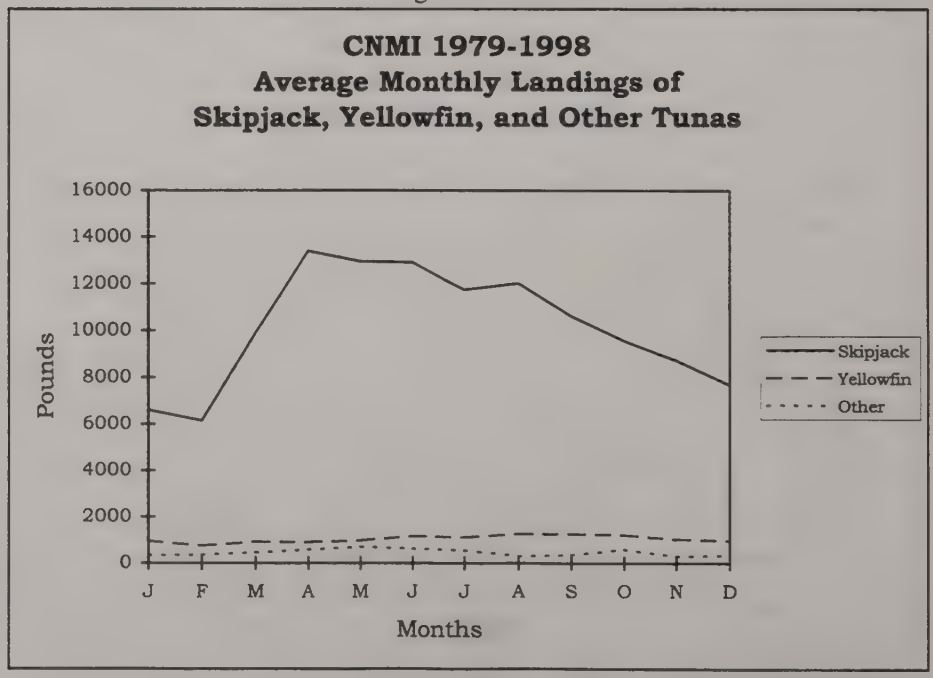

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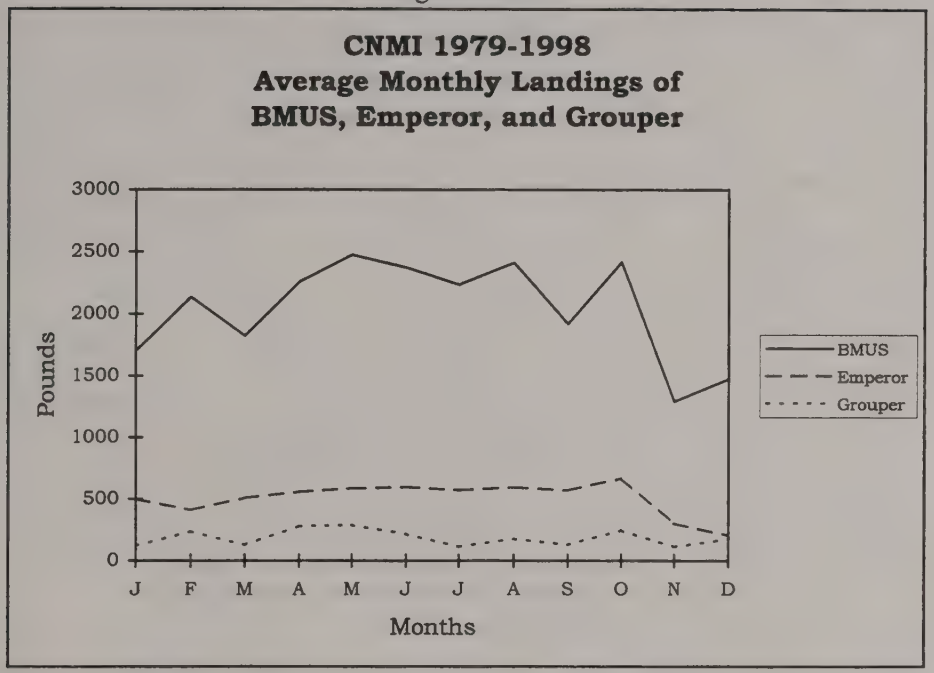

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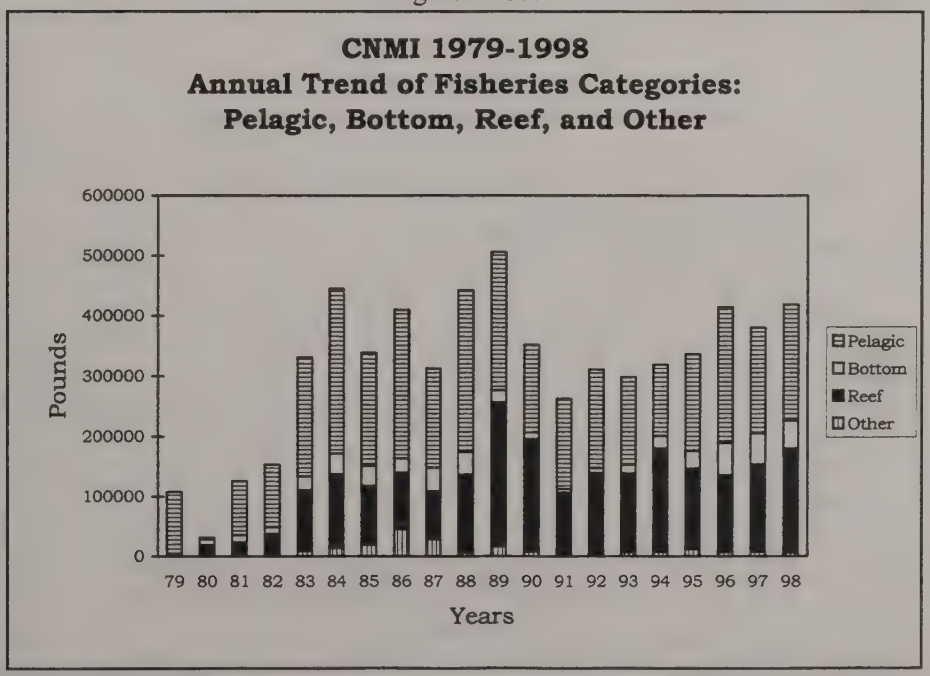

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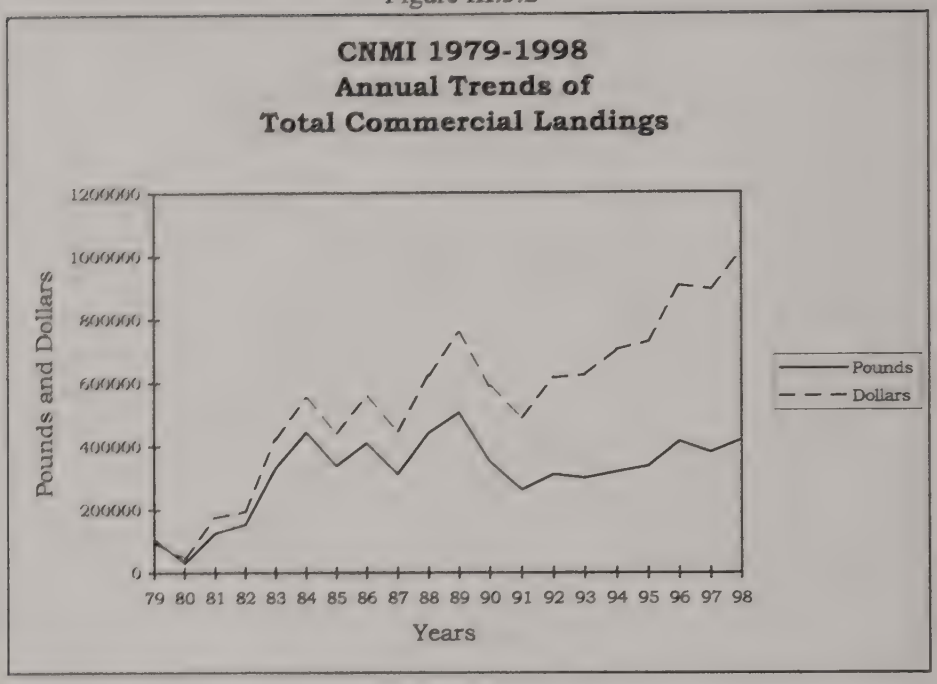

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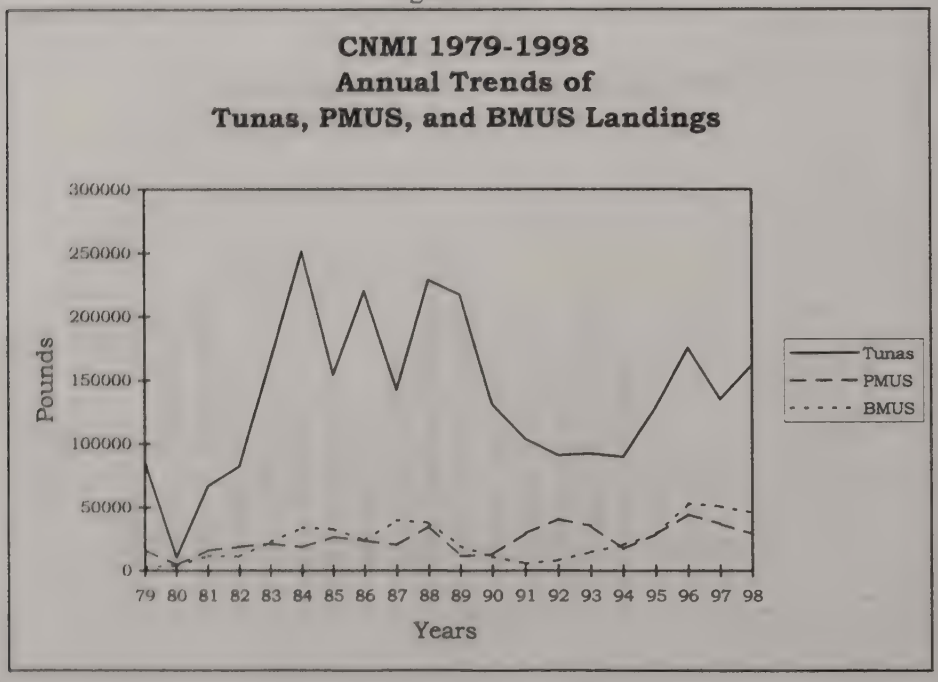

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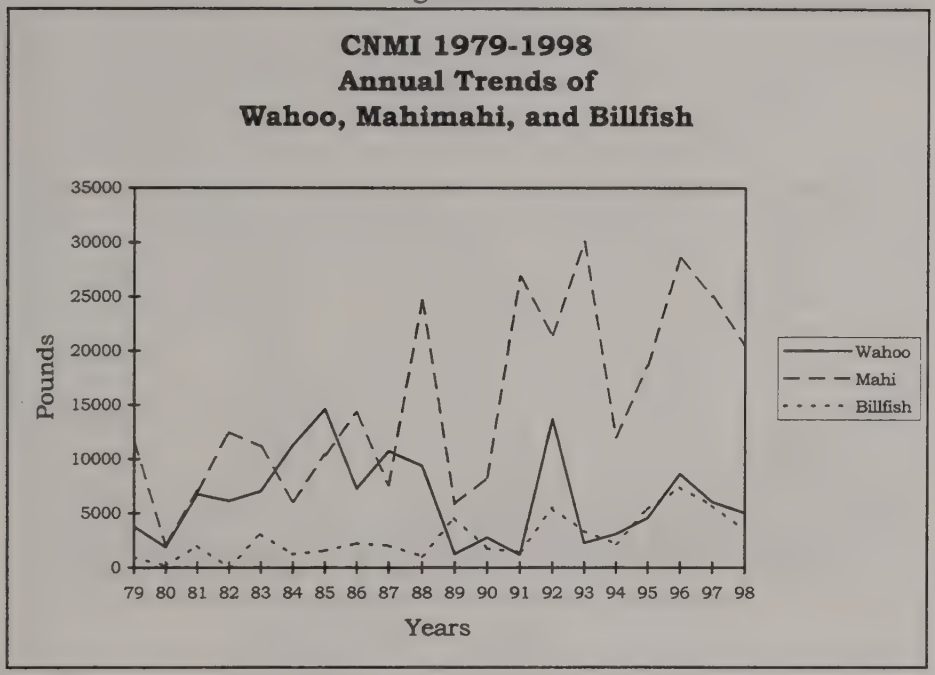

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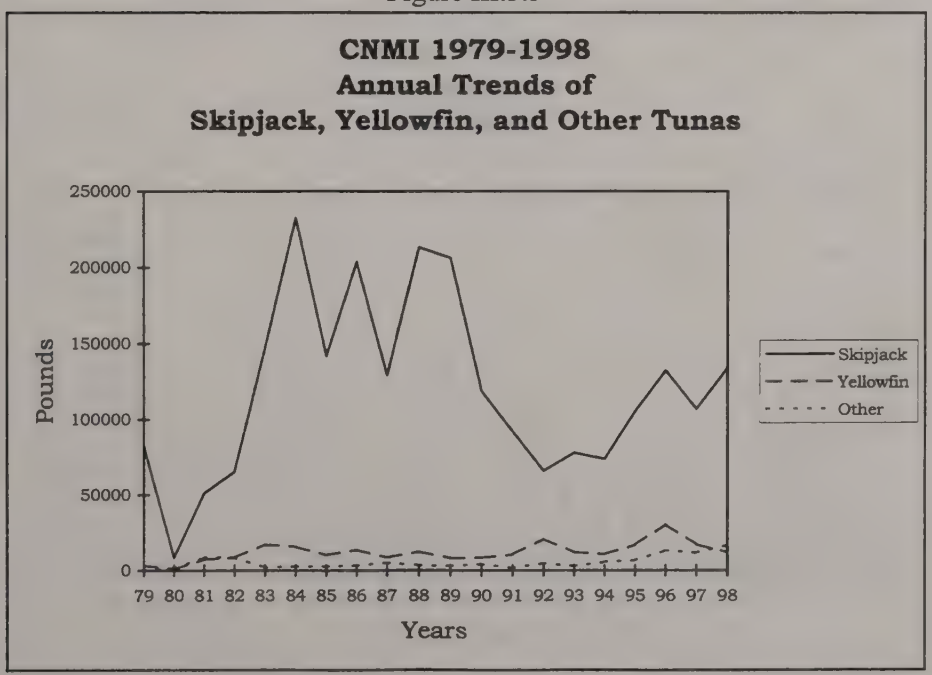

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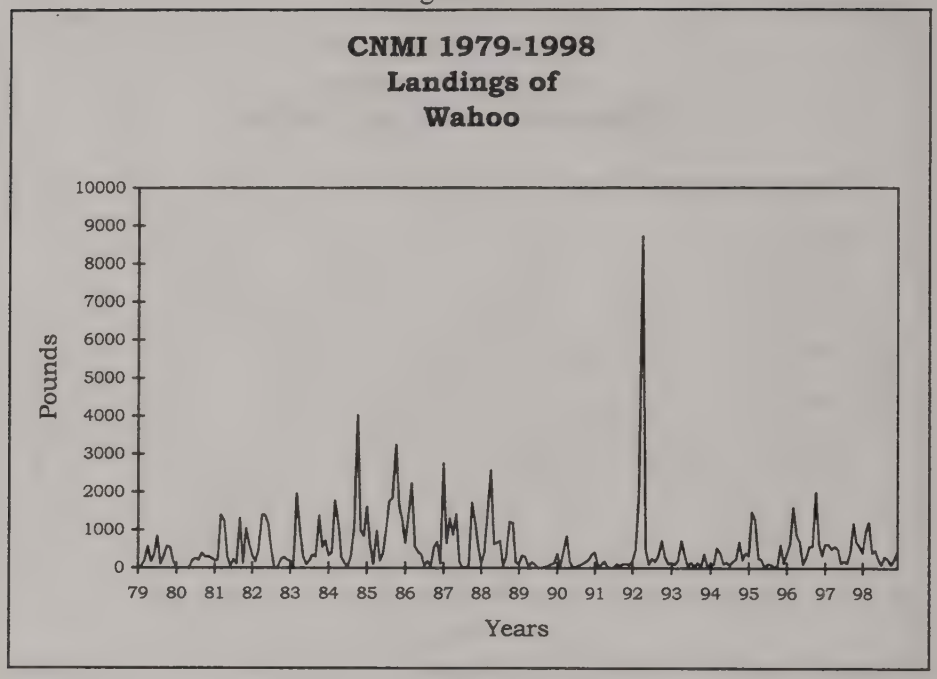

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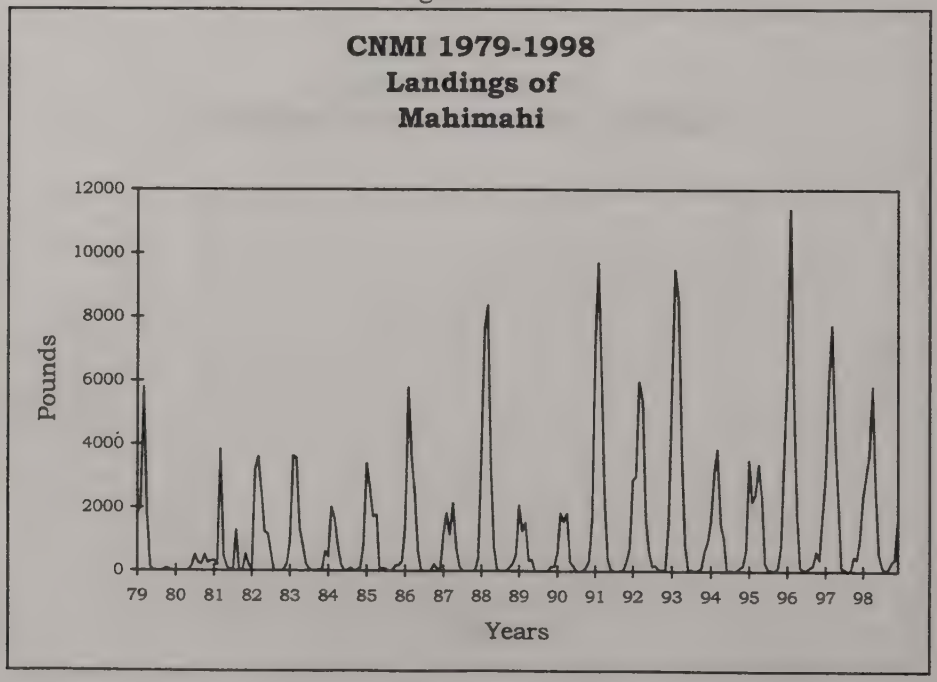

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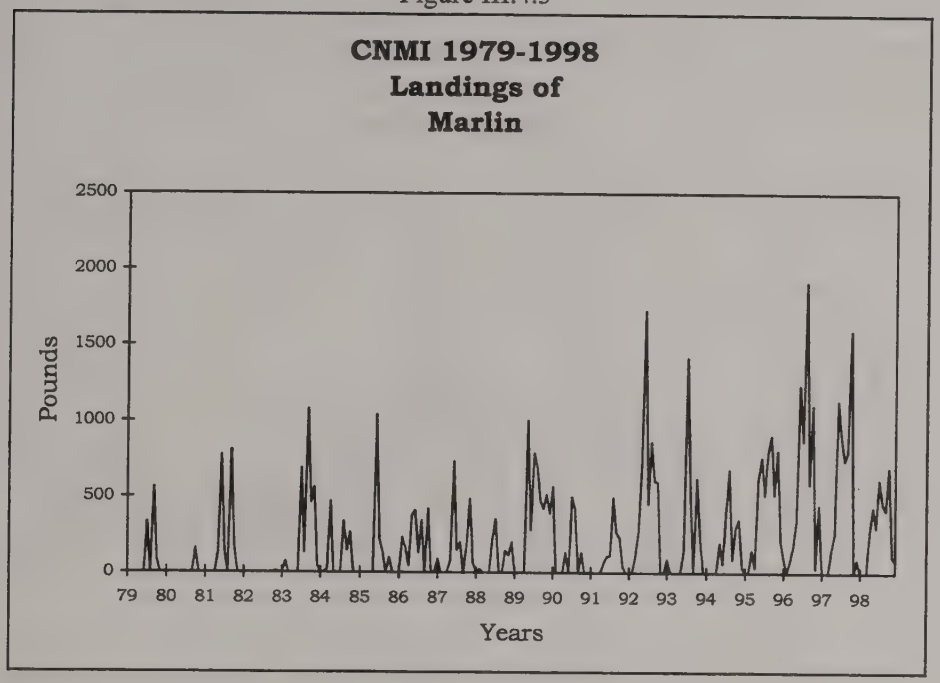

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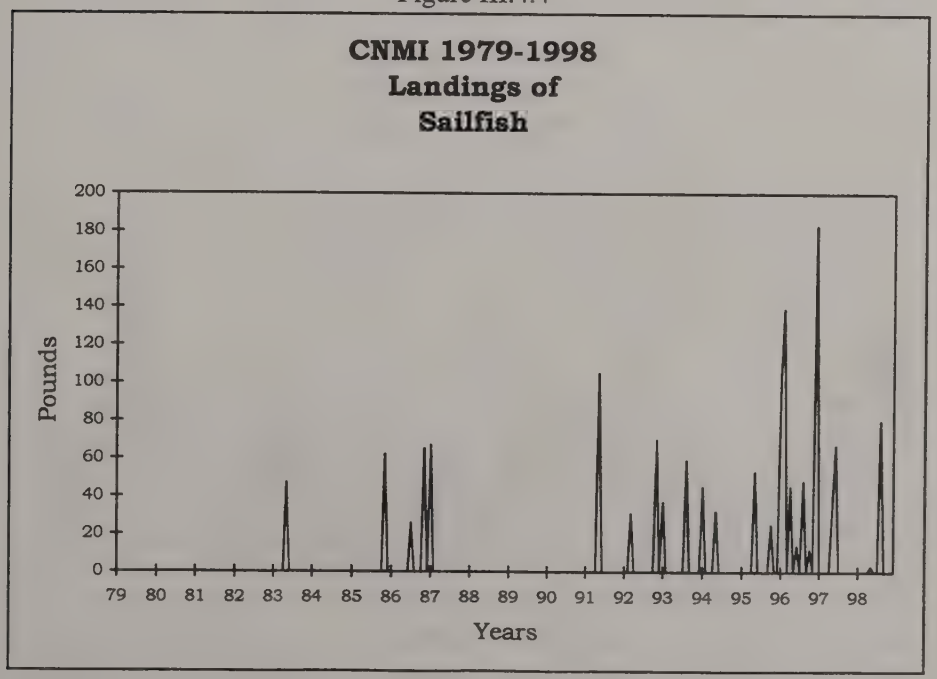

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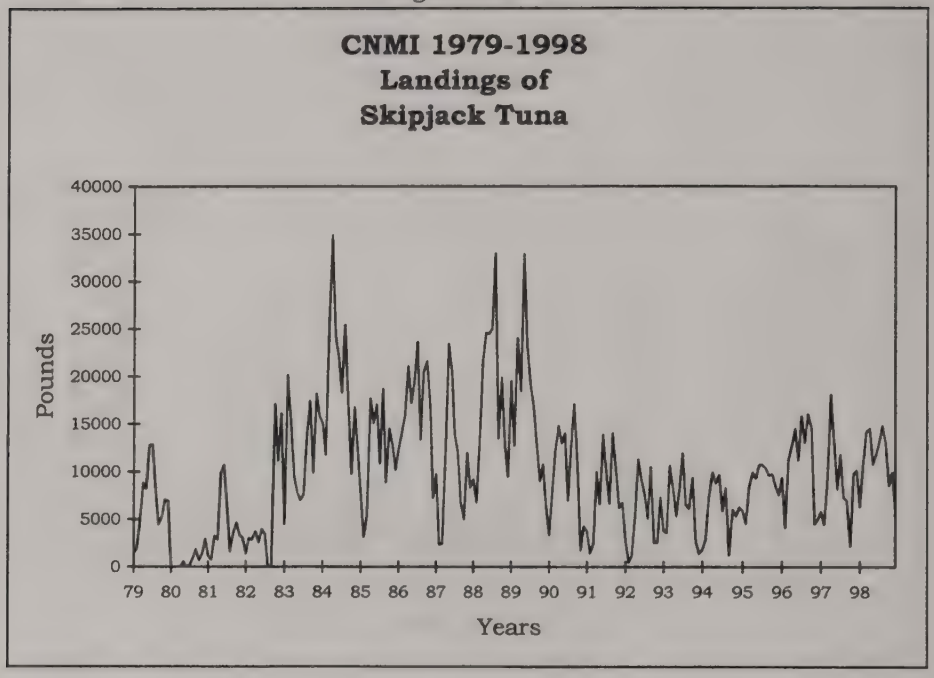

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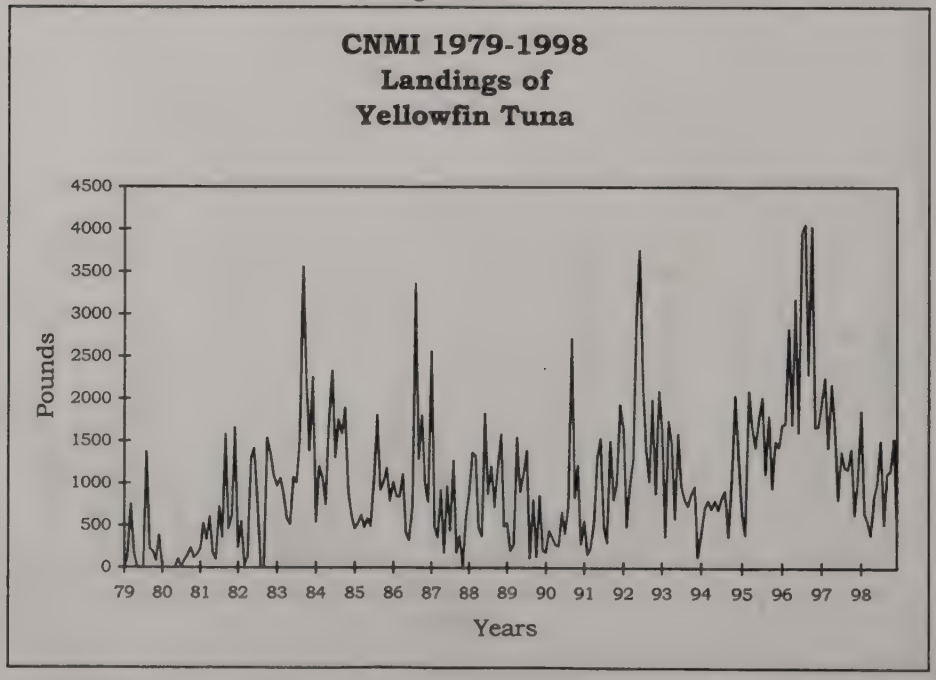

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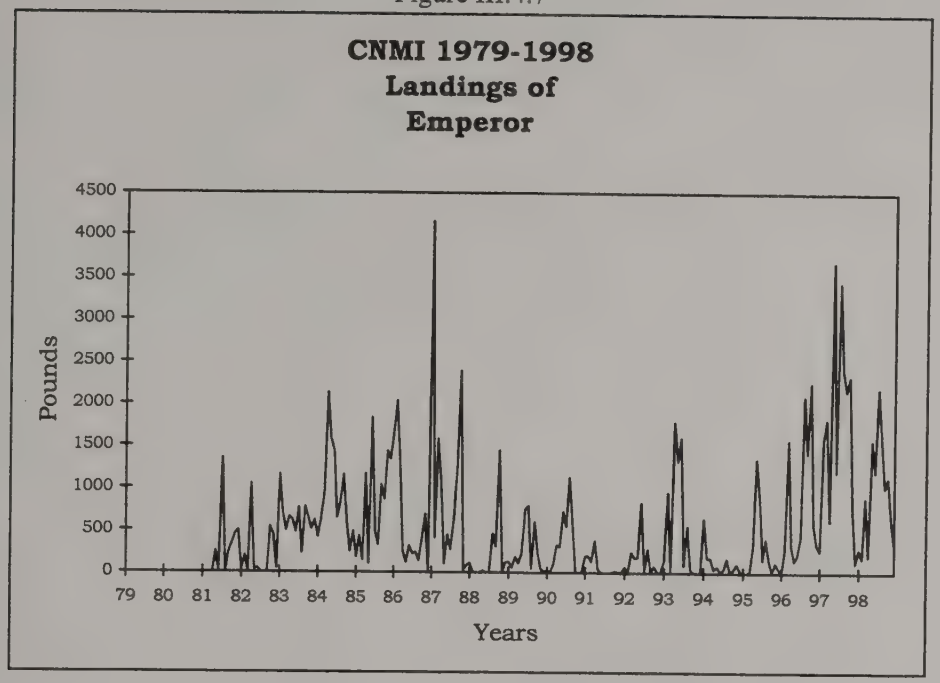

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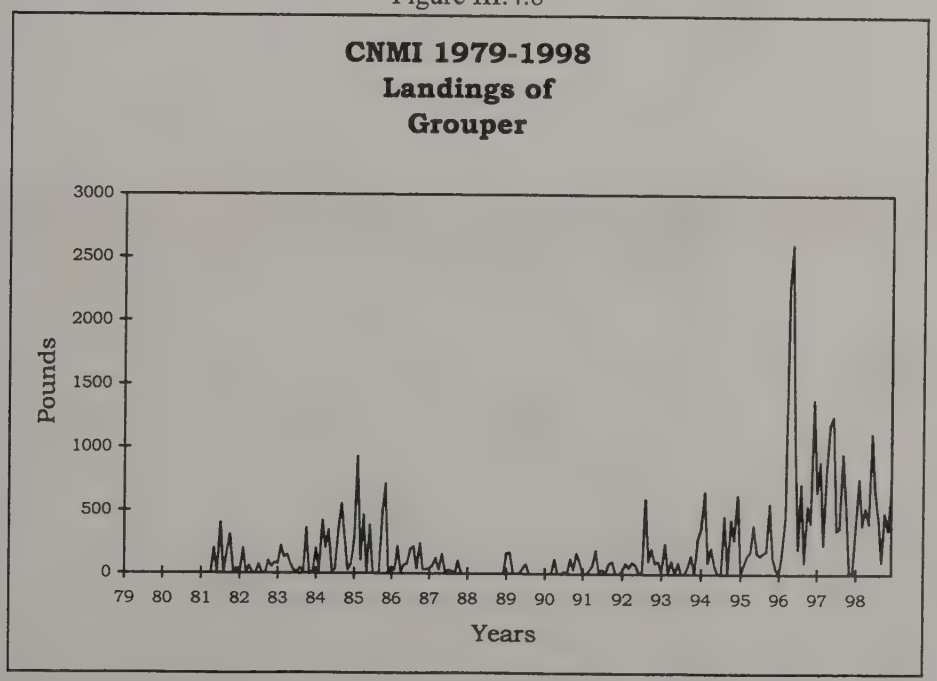

GUAM

Fishery Statistics 1998

GUAM 1998 FISHERY STATISTICS

Compiled by

Guam Division of Aquatic and Wildlife Resources

and the

Western Pacific Fishery Information Network

August 2000

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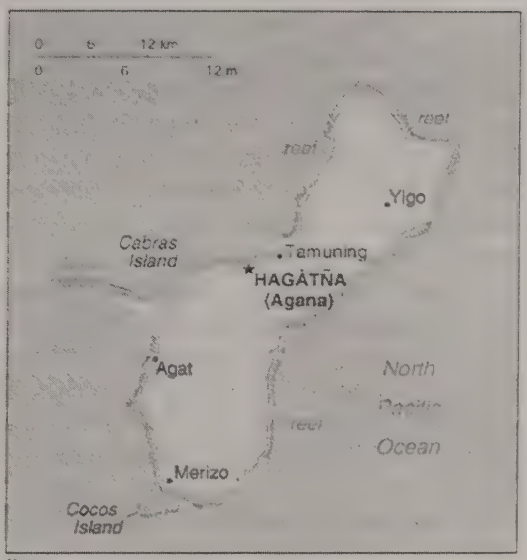
GUAM 1998 FISHERY STATISTICS

INTRODUCTION

The Territory of Guam (lat. 13.4° N and long. 144.4° E) is the southernmost, largest, and most populous island (about 151,716) in the Mariana Archipelago. Guam is located about 6,000 km (3,700 mi.) west-southwest of Honolulu, 2,500 km (1,550 mi.) south-southeast of Tokyo, and 2,600 km (1,600 mi.) east of Manila. The islands in the chain north of Guam belong to the Commonwealth of the Northern Mariana Islands.

Guam's economy relies heavily on tourism and military spending by the United States.



Guam

source: <http://www.cia.gov/cia/publications/factbook/gq.html>; *The World Factbook 1999*

Fishing activities on Guam are divided into two basic categories: offshore and inshore fishing. Offshore fishing typically involves small boats (12 to 48 feet) going on 1 to 2-day trolling and bottomfishing trips. They usually originate from one of the three principal harbors located on the west coast and southern tip of the island. Inshore fishing is typically conducted without the use of a boat and consists mostly of nearshore casting, netting, and spearfishing. In recent years, the sportfishing charter boat industry has increased significantly and contributes considerably to the commercial landings on Guam since much of the charter-caught catch is sold.

In 1982, WPacFIN began working with staff of the Division of Aquatic and Wildlife Resources (DAWR) and with local fish wholesalers to obtain information on the commercial landings of Guam through volunteer use of "trip ticket" invoices provided by WPacFIN. The tables and graphs in this section are summarized from receipts submitted by all the participating wholesalers on Guam and are estimated to include 80% of the total commercial landings.

COMMERCIAL LANDINGS DATA COLLECTION SYSTEM

Fish enter the commercial market in Guam from three sources: 1) full-time commercial fishermen; 2) part-time commercial fishermen; and 3) subsistence or recreational fishermen who frequently sell portions of their catch to help defray costs. Licenses are not required to sell fish in Guam, nor are there any reporting requirements for those selling fish.

Before 1979 there was no central place to sell fish; fishermen had to develop their own markets and peddle their own fish after each trip. In July 1979 the Guam Fishermen's Coop was established in Agana via government funding. The Coop subsequently became the central distribution center for fresh local fish.

In 1982, WPacFIN began working with the Coop to improve their invoicing system and obtain data on all fish purchases. A cooperative system was established whereby the Coop would use the forms and coding schemes designed by WPacFIN and would supply copies of all invoices to WPacFIN for computer data entry. In return, WPacFIN would provide the Coop with document quality control and computer generated summary statistics. All purchase-data back to July 1979 were also coded and computerized. As time progressed other fish markets began to operate, and DAWR and WPacFIN staff worked with them to obtain their data via the voluntary receipt book program as well.

Although a proposed law has been introduced several times that would require reporting by dealers and possibly commercial fishermen, it has never made it very far through the legislative process. Therefore, the commercial landings data collection system still remains a voluntary system and does not reflect the true total commercial landings. The receipt book program in 1998 is estimated to have covered 80% of the total commercial landings on Guam.

Data collected on commercial receipts forms include:

- Date
- Number of fishermen
- Area fished
- Number of pieces caught
- Price per pound
- Fisherman code
- Hours fished
- Species caught
- Pounds caught

COMMERCIAL LANDINGS DATA PROCESSING SYSTEM

The processing system for the commercial landings data collected from the fish dealers is fairly straightforward. Dealers complete a purchase form every time they purchase fish from a fisherman. On this form, catches are divided into categories for weighing by species or species group (where practicable, number of pieces is also recorded). In the early years data processing was done at the central WPacFIN office in Honolulu, but beginning in 1994 DAWR staff took over this task using a computer and software provided by WPacFIN. Once all the edits, verifications, and corrections are made, summary reports are generated. Numerous standard reports are available, but only the monthly and annual landings by species are provided in this document.

COMMERCIAL LANDINGS DATA REPORTING SYSTEM

After completing all editing and quality control activities for the commercial landings

data, monthly and annual summary reports by species are generated. Each table contains information on the pounds, value and the average price per pound for each species or species group. Each monthly report contains a subtotal for the sum of all species combined for that month, and the December report also includes the annual total. Annual reports contain the total landings for each species and the total recorded landings for all species for the calendar year.

Included with the commercial landings summary reports are graphs of some of the important statistics. The following groupings of species, species categories, and abbreviations are used in the tables and graphs for Guam's commercial landings:

I. Pelagic Management Unit Species (PMUS)

Although the Magnuson Fishery Conservation and Management Act of 1976 was amended in 1992 to include tunas in the Pacific PMUS (PPMUS), this report series will continue to specify tunas as a separate category from the PPMUS. The PMUS category in this report includes:

Mahimahi (dolphin)
Marlin (probably all blue but possibly striped or black)
Spearfish
Sailfish
Wahoo
Sharks

II. Bottomfish Management Unit Species (BMUS)

Jacks (unclassified but excluding bigeye scad)
Bottom fish (unclassified)
Ehu (red snapper)
Gindai (flower snapper)
Grouper
Kalekale (pink snapper)
Lehi (silverjaw snapper)
Onaga (red or longtail snapper)
Opakapaka (pink snapper)
Uku (gray snapper)
Emperor (mafute)

III. Billfish

Marlin (probably all blue but possibly striped or black)
Spearfish
Sailfish

IV. Tunas

Tunas (unclassified)
Skipjack tuna
Yellowfin tuna
Dogtooth or white tuna
Kawakawa

V. Other Tuna

All the above tunas excluding skipjack and yellowfin tunas.

VI. Fisheries Categories

A. Pelagic Species

All PMUS and tuna species plus the following:

Troll fish (unclassified)
Barracuda
Rainbow runner

B. Bottom Fish

Same as the BMUS

C. Reef Fish

Reef fish (unclassified)	Parrotfish
Giant wrasse	Snapper
Rabbitfish	Surgeonfish
Rudderfish	Unicornfish
Squirrelfish	Goatfish

D. Other

Miscellaneous (unclassified)	Coconut crab
Bigeye scad	Lobster
Mullet	Shrimp
Eels	Octopus
Milkfish	Squid
Invertebrates (unclassified)	Seaweeds
Crabs (unclassified)	Imported

INTERPRETATION OF STATISTICS

The user is reminded again to pay heed to the precautions and assumptions identified earlier in this document when making interpretations of or inferences from data reported in the tables and graphs. Remember also that the commercial landings summaries are not based on a census of all the fishing activities, but on samples of those activities. Guam's commercial landings reported in this volume for 1998 are believed to include approximately 80% of the actual commercial landings made on Guam during that year.

Table IV.1.1

Guam 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Unknown	395	1,402	3.55
Miscellaneous	345	1,015	2.95
Bigeye Scad (Atulai)	4,165	11,352	2.73
Jacks	2,164	5,905	2.73
Mullet	77	205	2.68
Sharks	13	6	0.50
Eel (Freshwater)	21	84	4.00
Milkfish	450	675	1.50
Bottom Fish	2,191	6,718	3.07
Ehu (Red Snapper)	197	774	3.93
Gindai (Flower Snap)	604	2,287	3.79
Grouper	766	2,127	2.78
Kalikali (Pink Snap)	251	879	3.51
Lehi (Silverjaw)	1,299	5,196	4.00
Onaga (Red Snapper)	726	3,446	4.74
Opakapaka (Pink Snp)	584	2,313	3.96
Uku (Gray Snapper)	345	975	2.83
Amberjack	207	594	2.87
Reef Fish	101,229	282,774	2.79
Wrasse	2,453	6,116	2.49
Rabbitfish (Hitting)	222	665	3.00
Rabbitfish (Sesjun)	1,516	4,749	3.13
Rudderfish (Guilli)	315	945	3.00
Emperor (Mafute)	1,075	3,158	2.94
Squirrelfish	89	267	3.00
Parrotfish	6,245	18,661	2.99
Snapper	1,312	3,628	2.77
Surgeonfish	648	1,935	2.99
Unicornfish	4,656	13,938	2.99
Goatfish	464	1,391	3.00
Troll Fish	1,145	2,400	2.10
Barracuda	1,645	3,237	1.97
Mahimahi (Dolphin)	138,783	255,012	1.84
Marlin	23,067	26,513	1.15
Spearfish	70	88	1.25
Sailfish	1,397	1,836	1.31
Rainbow Runner	969	2,195	2.27
Wahoo	53,709	116,663	2.17
Skipjack Tuna	49,066	61,218	1.25
Dogtooth Tuna	1,719	2,762	1.61
Yellowfin Tuna	44,773	96,892	2.16
Kawakawa	25	31	1.27
Invertebrates	67	273	4.10
Crabs (Misc.)	4	17	3.92
Lobster	1,606	6,076	3.78

Table IV.1.1 (cont.)

Species	Pounds	Value	$/lb
Octopus	1,818	6,093	3.35
Shrimp (Saltwater)	1,273	10,116	7.95
Squid	4	14	3.50
Tilapia (Misc.)	9,462	23,970	2.53
Tilapia (Red)	288	785	2.73
** TOTAL **	465,911	1,000,372	2.15

Table IV.1.2

Guam January 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	89	267	3.00
Bigeye Scad (Atulai)	301	636	2.11
Jacks	104	263	2.54
Bottom Fish	3	8	2.50
Grouper	5	12	2.53
Uku (Gray Snapper)	11	29	2.75
Reef Fish	3,986	10,347	2.60
Rabbitfish (Sesjun)	57	171	3.00
Rudderfish (Guilli)	23	69	3.00
Emperor (Mafute)	61	182	3.00
Parrotfish	560	1,680	3.00
Snapper	185	555	3.00
Surgeonfish	90	270	3.00
Unicornfish	691	2,073	3.00
Troll Fish	38	76	2.00
Barracuda	202	402	1.99
Mahimahi (Dolphin)	22,820	41,302	1.81
Marlin	594	545	0.92
Sailfish	23	28	1.25
Rainbow Runner	191	429	2.25
Wahoo	4,078	8,905	2.18
Skipjack Tuna	4,317	5,733	1.33
Dogtooth Tuna	169	269	1.59
Yellowfin Tuna	4,795	9,863	2.06
Lobster	5	19	3.96
Octopus	155	554	3.57
Shrimp (Saltwater)	291	1,944	6.69
Tilapia (Misc.)	689	1,723	2.50
** SUBTOTAL **	44,530	88,354	1.98

Table IV.1.3

Guam February 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Bigeye Scad (Atulai)	1,985	5,144	2.59
Jacks	238	713	3.00
Bottom Fish	41	123	3.00
Grouper	102	255	2.50
Reef Fish	7,785	19,861	2.55
Wrasse	17	41	2.50
Rabbitfish (Sesjun)	146	438	3.00
Rudderfish (Guilli)	48	144	3.00
Emperor (Mafute)	38	114	3.00
Parrotfish	1,502	4,506	3.00
Snapper	263	789	3.00
Surgeonfish	91	273	3.00
Unicornfish	792	2,376	3.00
Goatfish	21	63	3.00
Troll Fish	198	396	2.00
Barracuda	168	319	1.90
Mahimahi (Dolphin)	17,554	31,949	1.82
Marlin	106	171	1.62
Rainbow Runner	134	318	2.37
Wahoo	4,606	10,489	2.28
Skipjack Tuna	1,700	2,222	1.31
Dogtooth Tuna	50	93	1.86
Yellowfin Tuna	2,528	5,505	2.18
Lobster	45	178	3.94
Octopus	114	422	3.69
Shrimp (Saltwater)	80	480	6.00
Tilapia (Misc.)	460	1,150	2.50
** SUBTOTAL **	40,812	88,532	2.17

Table IV.1.4

Guam March 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Bigeye Scad (Atulai)	766	2,147	2.80
Jacks	2	6	3.00
Grouper	7	20	2.86
Opakapaka (Pink Snp)	27	108	4.00
Uku (Gray Snapper)	9	26	3.00
Reef Fish	8,699	22,817	2.62
Rabbitfish (Hitting)	23	69	3.00
Rabbitfish (Sesjun)	277	831	3.00
Rudderfish (Guilli)	87	261	3.00
Emperor (Mafute)	31	93	3.00
Parrotfish	792	2,376	3.00
Snapper	242	726	3.00
Surgeonfish	139	417	3.00
Unicornfish	1,557	4,671	3.00
Goatfish	200	600	3.00
Troll Fish	415	934	2.25
Barracuda	295	549	1.86
Mahimahi (Dolphin)	29,330	52,818	1.80
Sailfish	287	359	1.25
Rainbow Runner	9	21	2.50
Wahoo	20,019	42,105	2.10
Skipjack Tuna	1,862	2,503	1.34
Dogtooth Tuna	84	123	1.47
Yellowfin Tuna	3,077	6,751	2.19
Crabs (Misc.)	3	12	4.00
Lobster	63	247	3.93
Octopus	161	551	3.43
Shrimp (Saltwater)	44	352	8.00
Tilapia (Misc.)	633	1,763	2.78
** SUBTOTAL **	69,138	144,254	2.09

Table IV.1.5

Guam April 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Unknown	56	168	3.00
Bigeye Scad (Atulai)	232	776	3.34
Jacks	88	255	2.90
Bottom Fish	30	90	3.00
Uku (Gray Snapper)	4	10	2.75
Reef Fish	7,310	19,873	2.72
Wrasse	429	1,092	2.55
Rabbitfish (Sesjun)	253	759	3.00
Emperor (Mafute)	15	45	3.00
Parrotfish	410	1,230	3.00
Snapper	36	108	3.00
Surgeonfish	26	78	3.00
Unicornfish	301	903	3.00
Goatfish	65	195	3.00
Troll Fish	135	270	2.00
Barracuda	248	434	1.75
Mahimahi (Dolphin)	26,774	47,672	1.78
Marlin	2,676	3,319	1.24
Sailfish	237	360	1.52
Rainbow Runner	65	146	2.25
Wahoo	6,736	14,260	2.12
Skipjack Tuna	7,156	9,257	1.29
Dogtooth Tuna	83	120	1.45
Yellowfin Tuna	11,906	26,543	2.23
Kawakawa	2	2	1.50
Invertebrates	25	108	4.32
Lobster	149	585	3.93
Octopus	65	260	3.98
Shrimp (Saltwater)	14	112	8.00
Tilapia (Misc)	713	1,783	2.50
** SUBTOTAL **	66,238	130,813	1.97

Table IV.1.6

Guam May 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	139	408	2.93
Bigeye Scad (Atulai)	34	102	3.00
Jacks	79	237	3.00
Milkfish	200	300	1.50
Bottom Fish	272	816	3.00
Lehi (Silverjaw)	17	68	4.00
Opakapaka (Pink Snp)	16	64	4.00
Uku (Gray Snapper)	19	57	3.00
Reef Fish	8,080	23,030	2.85
Wrasse	442	995	2.25
Rabbitfish (Sesjun)	186	558	3.00
Emperor (Mafute)	58	178	3.04
Parrotfish	392	1,061	2.71
Snapper	6	18	3.00
Surgeonfish	107	321	3.00
Unicornfish	283	849	3.00
Goatfish	84	252	3.00
Troll Fish	172	344	2.00
Barracuda	71	144	2.03
Mahimahi (Dolphin)	12,535	21,151	1.69
Marlin	1,865	2,140	1.15
Sailfish	212	281	1.33
Rainbow Runner	42	104	2.46
Wahoo	1,588	3,510	2.21
Skipjack Tuna	9,545	11,595	1.21
Dogtooth Tuna	442	835	1.89
Yellowfin Tuna	9,277	20,878	2.25
Lobster	176	683	3.88
Octopus	48	192	4.00
Tilapia (Misc.)	780	1,950	2.50
** SUBTOTAL **	47,166	93,119	1.97

Table IV.1.7

Guam June 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	20	58	2.84
Bigeye Scad (Atulai)	260	784	3.02
Jacks	252	617	2.45
Eel (Freshwater)	14	56	4.00
Milkfish	250	375	1.50
Bottom Fish	689	2,066	3.00
Gindai (Flower Snap)	9	33	3.50
Onaga (Red Snapper)	341	1,533	4.50
Reef Fish	7,723	21,789	2.82
Wrasse	144	359	2.50
Rabbitfish (Sesjun)	99	297	3.00
Squirrelfish	50	150	3.00
Parrotfish	57	171	3.00
Surgeonfish	37	111	3.00
Unicornfish	320	960	3.00
Goatfish	79	237	3.00
Barracuda	45	86	1.91
Mahimahi (Dolphin)	1,594	3,409	2.14
Marlin	3,692	4,208	1.14
Rainbow Runner	71	171	2.40
Wahoo	1,051	2,802	2.67
Skipjack Tuna	6,116	7,400	1.21
Dogtooth Tuna	86	105	1.23
Yellowfin Tuna	3,574	7,312	2.05
Invertebrates	5	18	4.00
Lobster	219	852	3.89
Octopus	175	698	3.99
Shrimp (Saltwater)	4	16	4.00
Tilapia (Misc.)	800	2,000	2.50
** SUBTOTAL **	27,773	58,670	2.11

Table IV.1.8

Guam July 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Unknown	150	546	3.64
Miscellaneous	61	178	2.90
Bigeye Scad (Atulai)	194	581	3.00
Jacks	409	1,114	2.73
Sharks	13	6	0.50
Bottom Fish	283	855	3.03
Ehu (Red Snapper)	13	50	4.00
Gindai (Flower Snap)	85	340	4.00
Grouper	118	366	3.11
Kalikali (Pink Snap)	28	102	3.71
Lehi (Silverjaw)	173	690	4.00
Onaga (Red Snapper)	9	28	3.25
Opakapaka (Pink Snp)	53	212	4.00
Uku (Gray Snapper)	141	421	2.98
Amberjack	9	28	3.25
Reef Fish	7,435	20,738	2.79
Wrasse	340	867	2.55
Rabbitfish (Hitting)	24	72	3.00
Rabbitfish (Sesjun)	80	240	3.00
Rudderfish (Guilli)	157	471	3.00
Emperor (Mafute)	221	662	3.00
Squirrelfish	6	18	3.00
Parrotfish	768	2,259	2.94
Snapper	270	710	2.63
Surgeonfish	106	318	3.00
Unicornfish	452	1,356	3.00
Goatfish	10	30	3.00
Barracuda	41	84	2.08
Mahimahi (Dolphin)	171	374	2.18
Marlin	5,179	6,210	1.20
Rainbow Runner	97	240	2.47
Wahoo	981	2,531	2.58
Skipjack Tuna	5,702	7,014	1.23
Dogtooth Tuna	292	450	1.54
Yellowfin Tuna	4,784	10,373	2.17
Kawakawa	23	29	1.25
Invertebrates	24	96	4.00
Lobster	226	845	3.74
Octopus	128	450	3.51
Shrimp (Saltwater)	41	328	8.00
Tilapia (Misc.)	1,300	3,250	2.50
** SUBTOTAL **	30,593	65,532	2.14

Table IV.1.9

Guam August 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Unknown	86	313	3.64
Miscellaneous	35	105	3.00
Bigeye Scad (Atulai)	394	1,183	3.00
Jacks	268	731	2.73
Mullet	57	155	2.72
Bottom Fish	449	1,428	3.18
Ehu (Red Snapper)	61	228	3.76
Gindai (Flower Snap)	392	1,443	3.68
Grouper	248	657	2.65
Kalikali (Pink Snap)	76	261	3.45
Lehi (Silverjaw)	241	964	4.00
Onaga (Red Snapper)	91	455	5.00
Opakapaka (Pink Snp)	146	561	3.86
Uku (Gray Snapper)	30	75	2.55
Amberjack	30	90	3.00
Reef Fish	11,155	31,683	2.84
Wrasse	166	415	2.50
Rabbitfish (Hitting)	48	143	3.00
Rabbitfish (Sesjun)	71	213	3.00
Emperor (Mafute)	232	695	3.00
Squirrelfish	33	99	3.00
Parrotfish	868	2,591	2.99
Snapper	29	86	2.98
Surgeonfish	43	129	3.00
Unicornfish	217	651	3.00
Goatfish	4	12	3.00
Barracuda	30	61	2.06
Mahimahi (Dolphin)	57	128	2.23
Marlin	1,981	2,032	1.03
Sailfish	71	94	1.33
Rainbow Runner	62	137	2.20
Wahoo	1,461	3,573	2.44
Skipjack Tuna	3,756	4,665	1.24
Dogtooth Tuna	276	404	1.47
Yellowfin Tuna	1,248	2,464	1.97
Invertebrates	7	28	4.00
Lobster	289	1,082	3.75
Octopus	84	286	3.40
Shrimp (Saltwater)	45	360	8.00
Tilapia (Misc.)	300	750	2.50
** SUBTOTAL **	25,132	61,426	2.44

Table IV.1.10

Guam September 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Unknown	71	258	3.64
Jacks	151	420	2.78
Mullet	2	6	3.00
Bottom Fish	102	305	3.00
Ehu (Red Snapper)	14	54	4.00
Gindai (Flower Snap)	49	196	4.00
Grouper	60	179	3.00
Kalikali (Pink Snap)	96	335	3.50
Lehi (Silverjaw)	228	911	4.00
Onaga (Red Snapper)	13	65	5.00
Opakapaka (Pink Snp)	134	535	4.00
Uku (Gray Snapper)	55	147	2.69
Amberjack	22	65	3.00
Reef Fish	9,702	27,271	2.81
Wrasse	256	660	2.58
Rabbitfish (Hitting)	127	381	3.00
Emperor (Mafute)	16	47	2.92
Parrotfish	164	464	2.84
Snapper	8	19	2.50
Barracuda	79	162	2.05
Mahimahi (Dolphin)	236	540	2.29
Marlin	1,766	2,112	1.20
Sailfish	313	391	1.25
Rainbow Runner	38	89	2.37
Wahoo	2,120	4,991	2.35
Skipjack Tuna	2,598	3,177	1.22
Dogtooth Tuna	44	65	1.50
Yellowfin Tuna	1,099	2,385	2.17
Invertebrates	3	10	3.75
Lobster	241	838	3.48
Octopus	238	630	2.64
Shrimp (Saltwater)	44	352	8.00
Tilapia (Misc.)	500	1,250	2.50
** SUBTOTAL **	20,584	49,309	2.40

Table IV.1.11

Guam October 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Jacks	333	929	2.79
Bottom Fish	135	463	3.43
Ehu (Red Snapper)	86	342	4.00
Gindai (Flower Snap)	37	146	4.00
Grouper	225	630	2.81
Kalikali (Pink Snap)	45	158	3.50
Lehi (Silverjaw)	281	1,124	4.00
Onaga (Red Snapper)	95	475	5.00
Opakapaka (Pink Snp)	128	510	4.00
Uku (Gray Snapper)	78	211	2.71
Amberjack	103	308	3.00
Reef Fish	10,644	30,993	2.91
Wrasse	58	158	2.75
Rabbitfish (Sesjun)	291	1,074	3.69
Emperor (Mafute)	385	1,088	2.82
Parrotfish	122	358	2.94
Snapper	245	527	2.16
Unicornfish	13	39	3.00
Troll Fish	24	54	2.25
Barracuda	265	606	2.29
Mahimahi (Dolphin)	3,916	8,957	2.29
Marlin	3,859	3,980	1.03
Sailfish	236	294	1.25
Rainbow Runner	37	78	2.09
Wahoo	1,831	4,372	2.39
Skipjack Tuna	3,790	4,559	1.20
Dogtooth Tuna	101	162	1.62
Yellowfin Tuna	1,155	2,265	1.96
Crabs (Misc.)	1	5	3.75
Lobster	89	342	3.85
Octopus	215	653	3.03
Shrimp (Saltwater)	263	2,323	8.84
Tilapia (Misc.)	820	2,050	2.50
Tilapia (Red)	131	393	3.00
** SUBTOTAL **	30,033	70,624	2.35

Table IV.1.12

Guam November 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Unknown	32	116	3.64
Jacks	158	375	2.37
Mullet	18	45	2.50
Eel (Freshwater)	7	28	4.00
Bottom Fish	40	120	3.00
Ehu (Red Snapper)	10	42	4.00
Gindai (Flower Snap)	22	88	4.00
Grouper	3	9	3.00
Kalikali (Pink Snap)	5	16	3.50
Lehi (Silverjaw)	231	925	4.00
Onaga (Red Snapper)	102	512	5.00
Opakapaka (Pink Snp)	56	225	4.00
Amberjack	22	54	2.51
Reef Fish	8,939	25,646	2.87
Wrasse	148	393	2.65
Rabbitfish (Sesjun)	56	168	3.00
Emperor (Mafute)	5	14	3.00
Parrotfish	45	136	3.00
Snapper	5	15	2.86
Surgeonfish	9	18	2.00
Unicornfish	14	28	2.00
Goatfish	1	2	3.00
Troll Fish	149	298	2.00
Barracuda	98	177	1.82
Mahimahi (Dolphin)	6,765	13,297	1.97
Marlin	662	863	1.30
Spearfish	17	21	1.25
Rainbow Runner	128	260	2.03
Wahoo	5,902	12,004	2.03
Skipjack Tuna	1,553	1,817	1.17
Dogtooth Tuna	22	33	1.50
Yellowfin Tuna	549	1,028	1.87
Invertebrates	4	14	3.75
Lobster	50	199	3.94
Octopus	63	189	3.00
Shrimp (Saltwater)	375	3,205	8.55
Squid	4	14	3.50
Tilapia (Misc.)	1,057	2,707	2.56
** SUBTOTAL **	27,325	65,101	2.38

Table IV.1.13

Guam December 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Jacks	84	247	2.94
Bottom Fish	148	444	3.00
Ehu (Red Snapper)	15	58	4.00
Gindai (Flower Snap)	10	41	4.00
Kalikali (Pink Snap)	3	8	3.00
Lehi (Silverjaw)	128	514	4.00
Onaga (Red Snapper)	76	378	5.00
Opakapaka (Pink Snp)	25	98	4.00
Amberjack	23	50	2.17
Reef Fish	9,772	28,727	2.94
Wrasse	455	1,137	2.50
Emperor (Mafute)	14	42	3.00
Parrotfish	566	1,829	3.23
Snapper	24	75	3.15
Unicornfish	16	32	2.00
Troll Fish	14	28	2.00
Barracuda	104	213	2.04
Mahimahi (Dolphin)	17,032	33,415	1.96
Marlin	689	934	1.36
Spearfish	53	66	1.25
Sailfish	19	29	1.50
Rainbow Runner	96	202	2.12
Wahoo	3,336	7,122	2.13
Skipjack Tuna	970	1,275	1.31
Dogtooth Tuna	72	103	1.43
Yellowfin Tuna	780	1,526	1.96
Lobster	54	206	3.80
Octopus	371	1,207	3.26
Shrimp (Saltwater)	73	644	8.82
Tilapia (Misc.)	1,411	3,596	2.55
Tilapia (Red)	157	392	2.50
** SUBTOTAL **	36,589	84,639	2.31
** TOTAL **	465,911	1,000,372	2.15

Figure IV.1.1

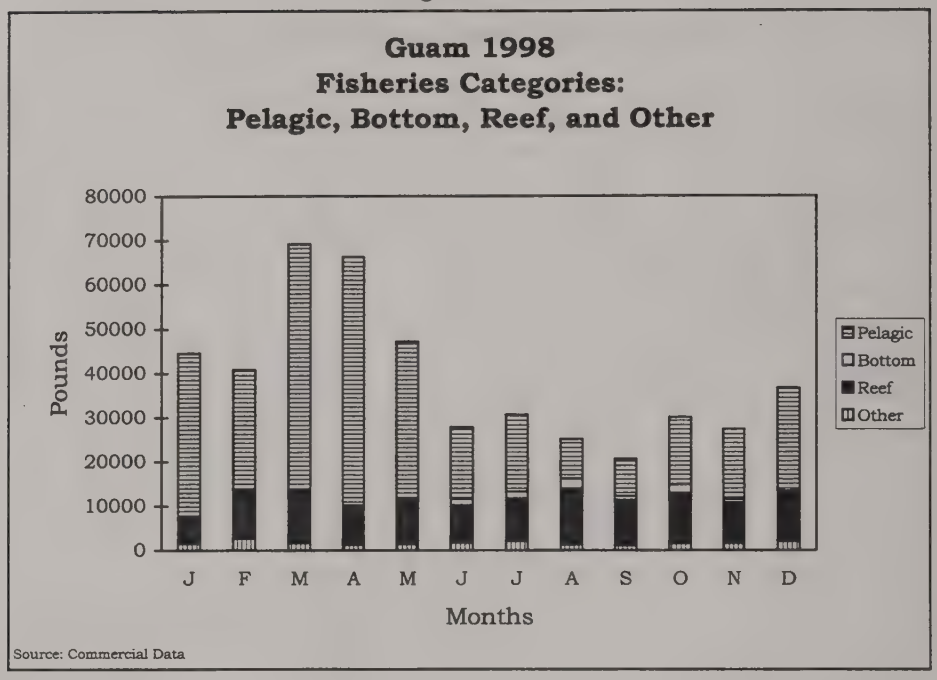


Figure IV.1.2

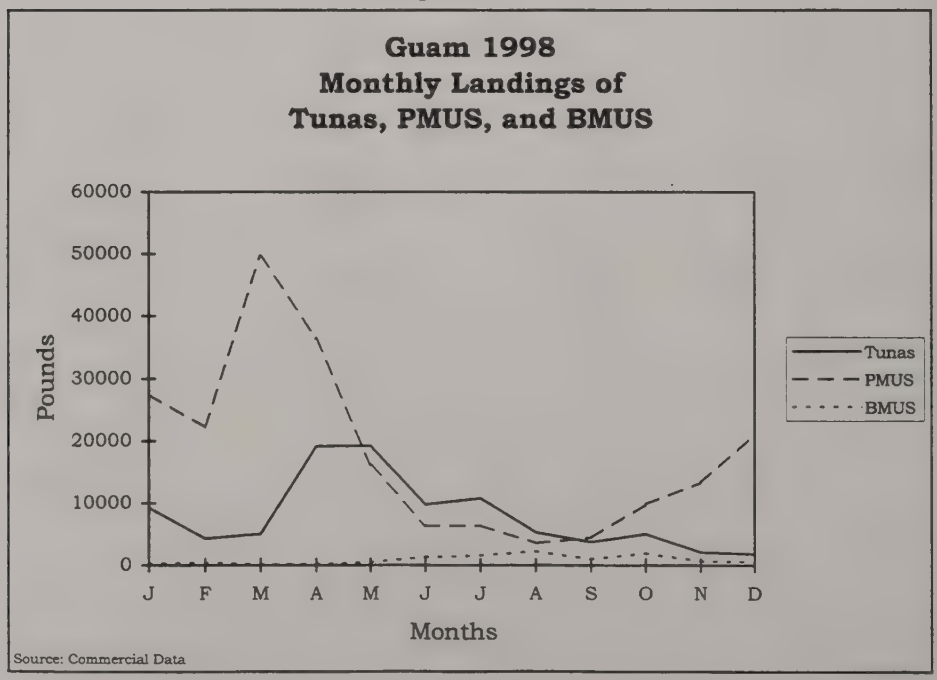


Figure IV.1.3

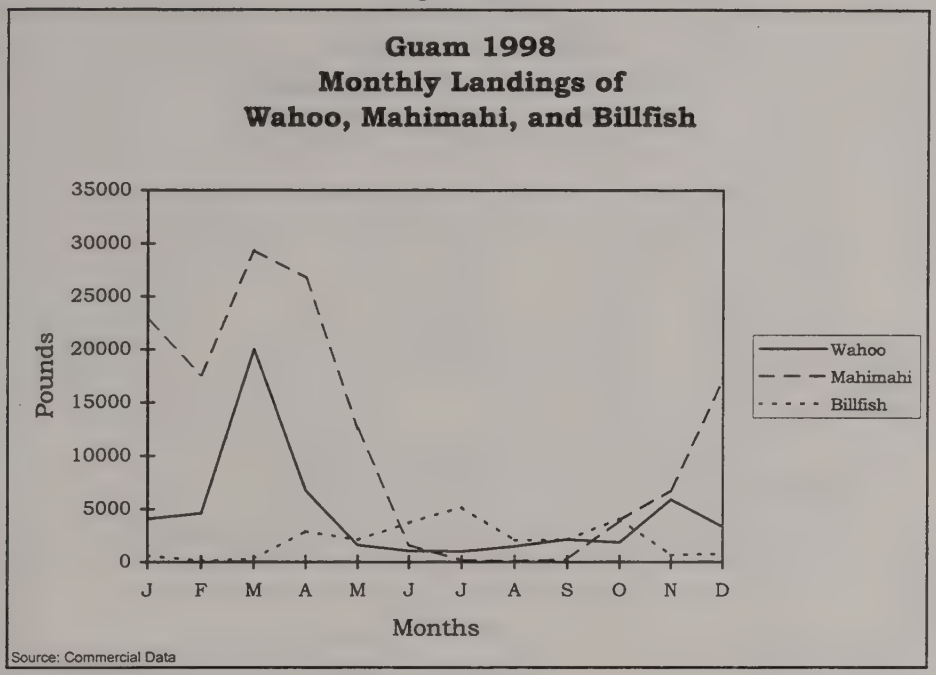


Figure IV.1.4

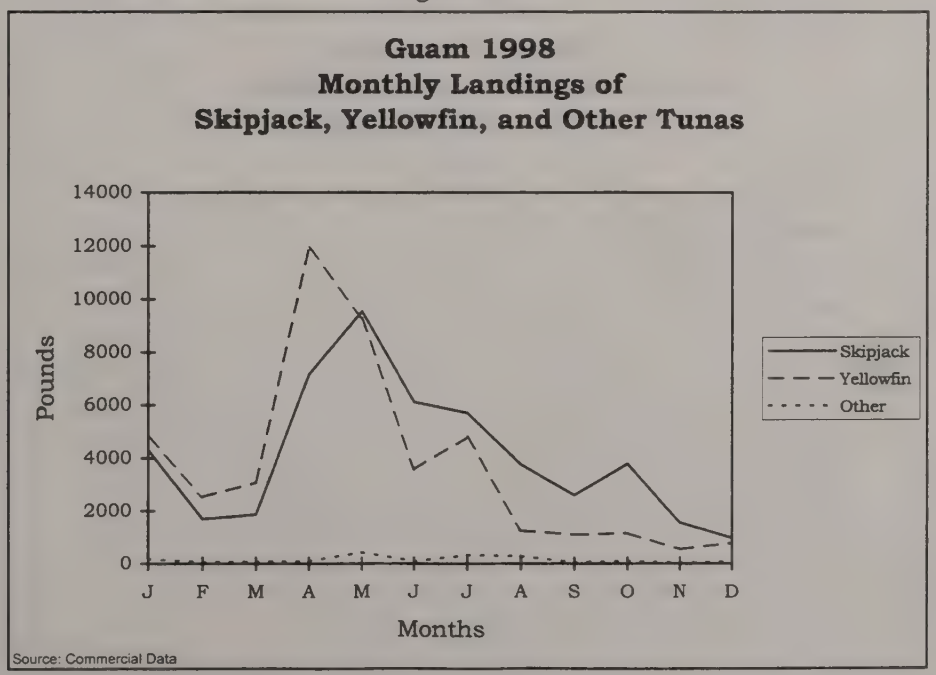


Figure IV.2.1

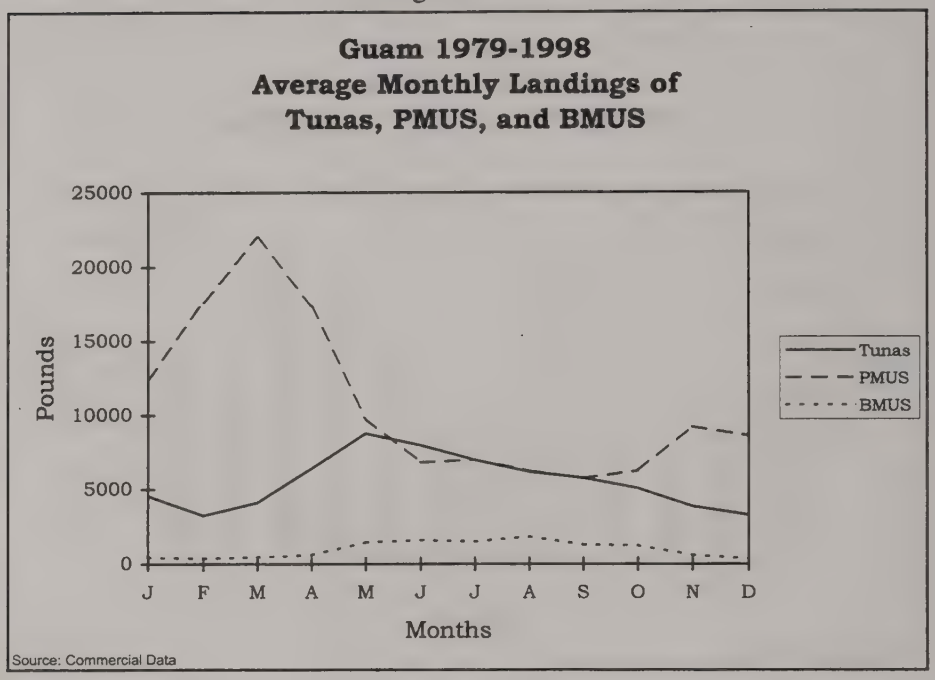


Figure IV.2.2

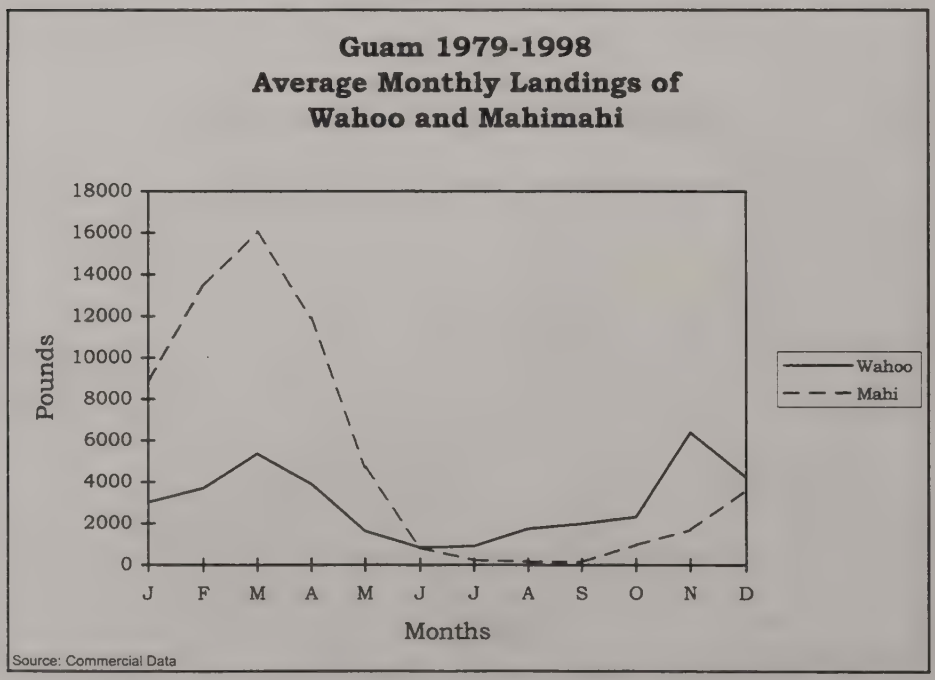


Figure IV.2.3

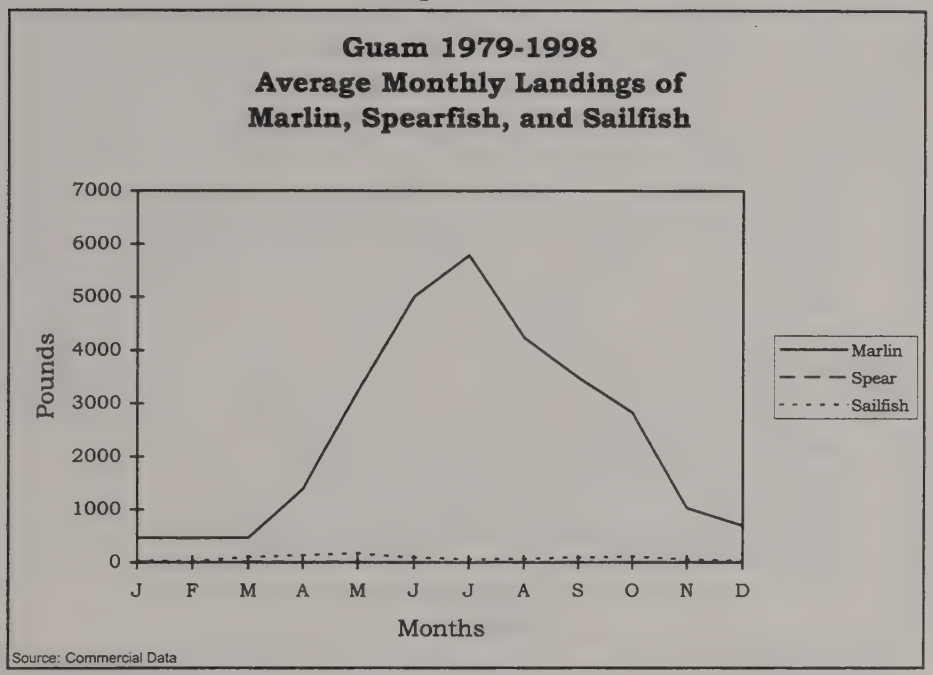
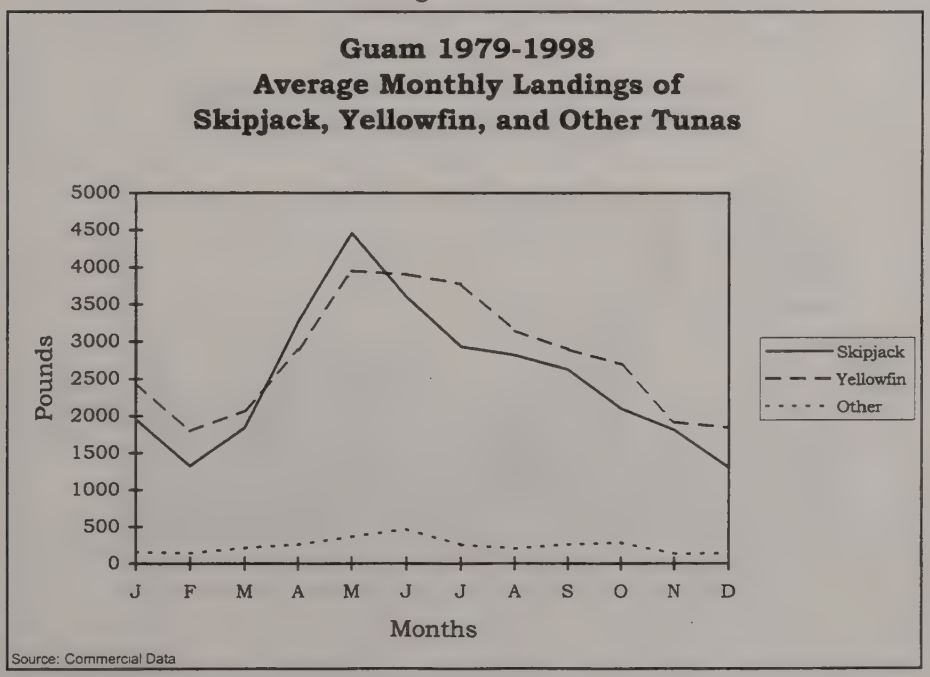


Figure IV.2.4



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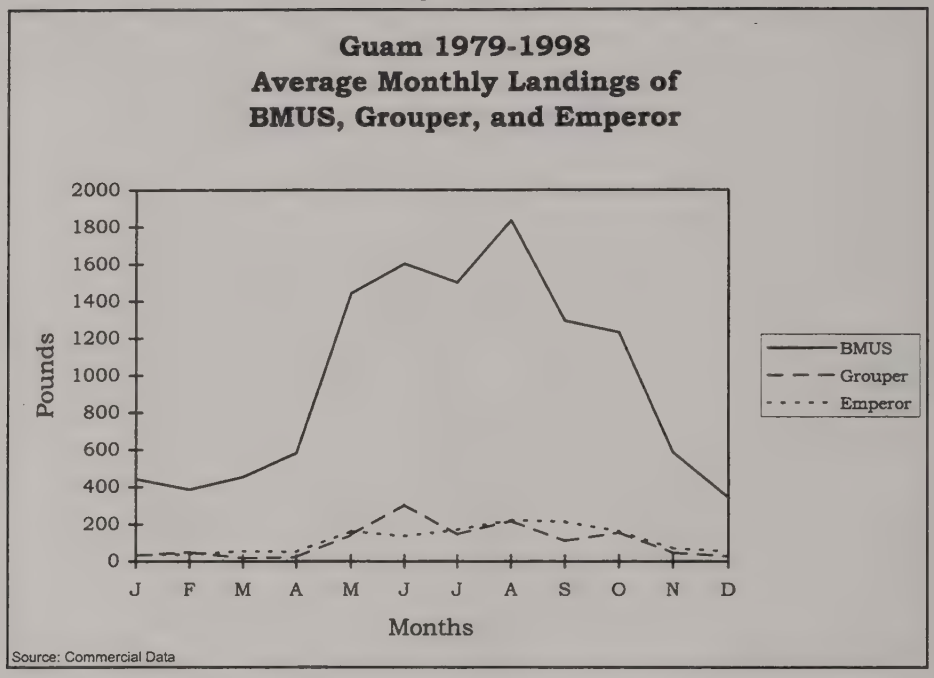

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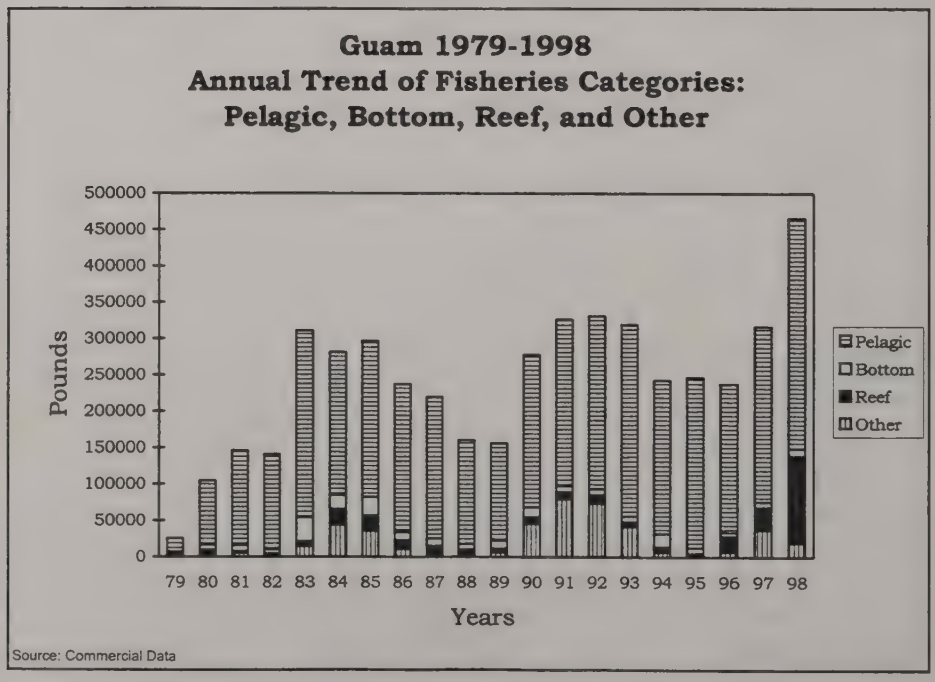

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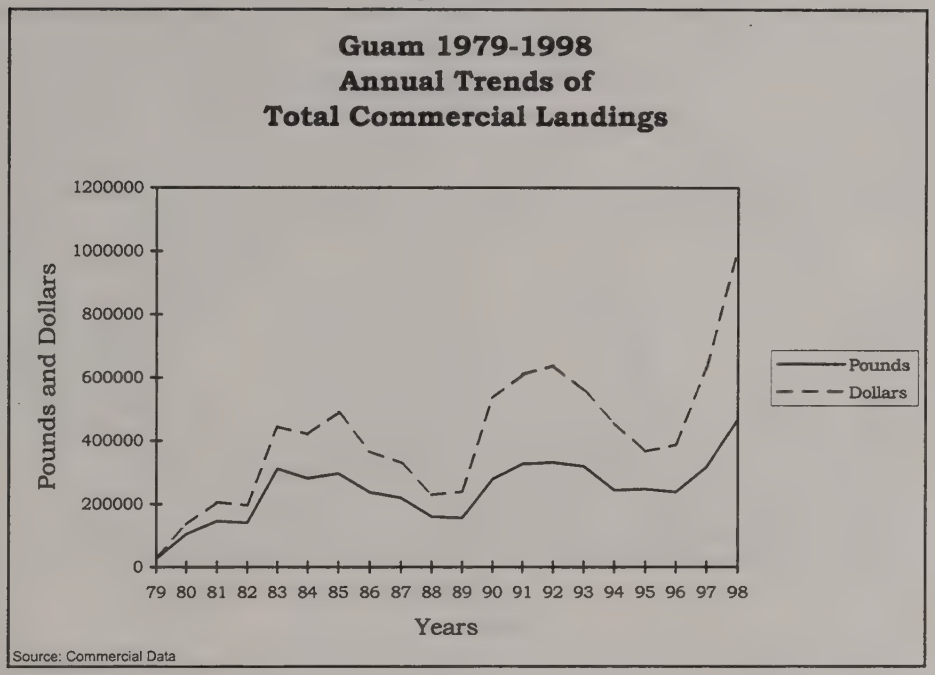

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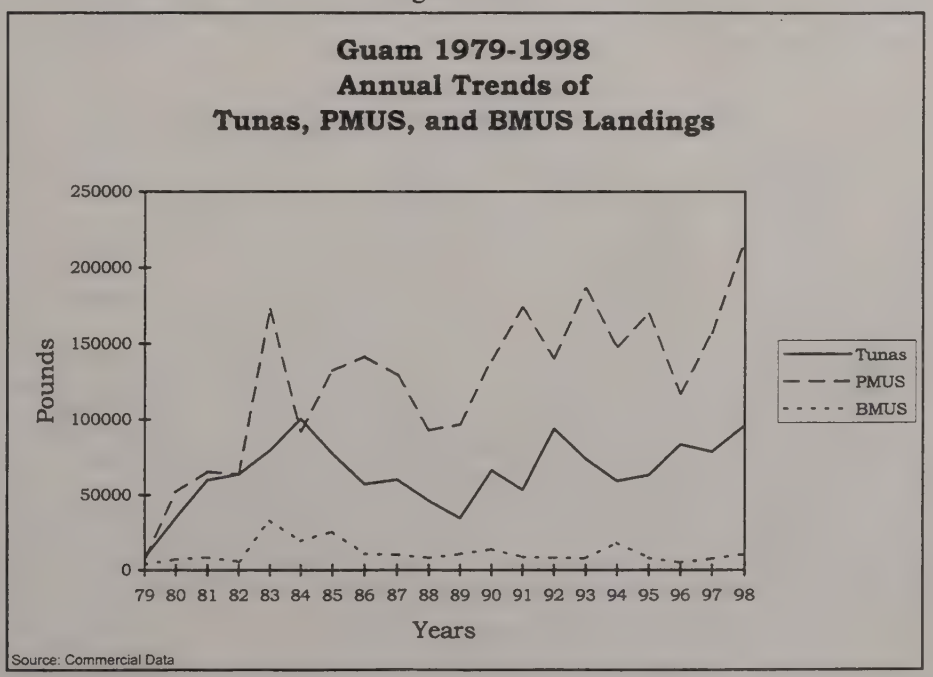

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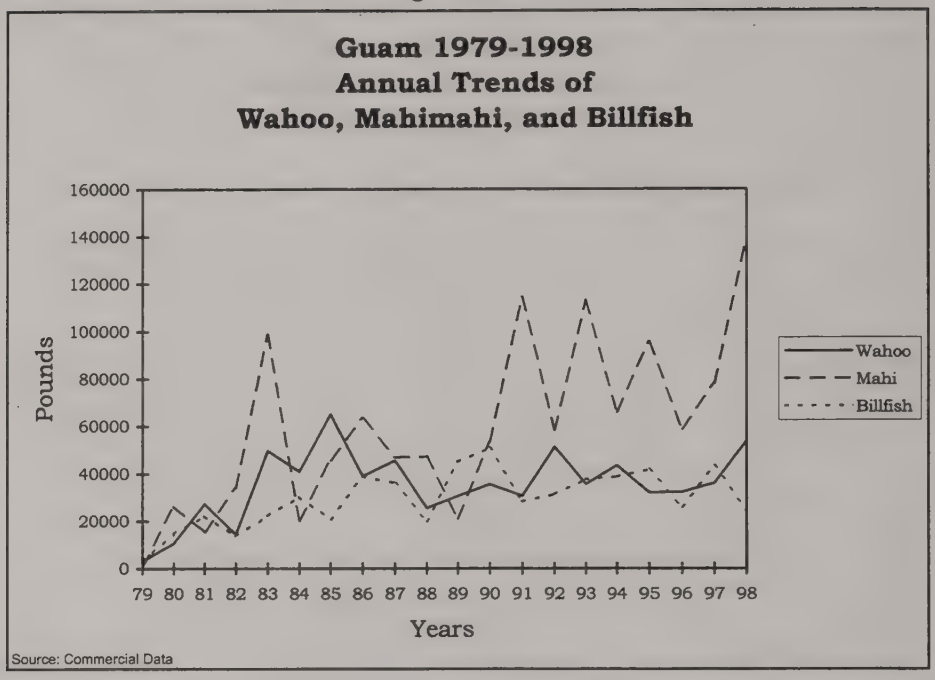

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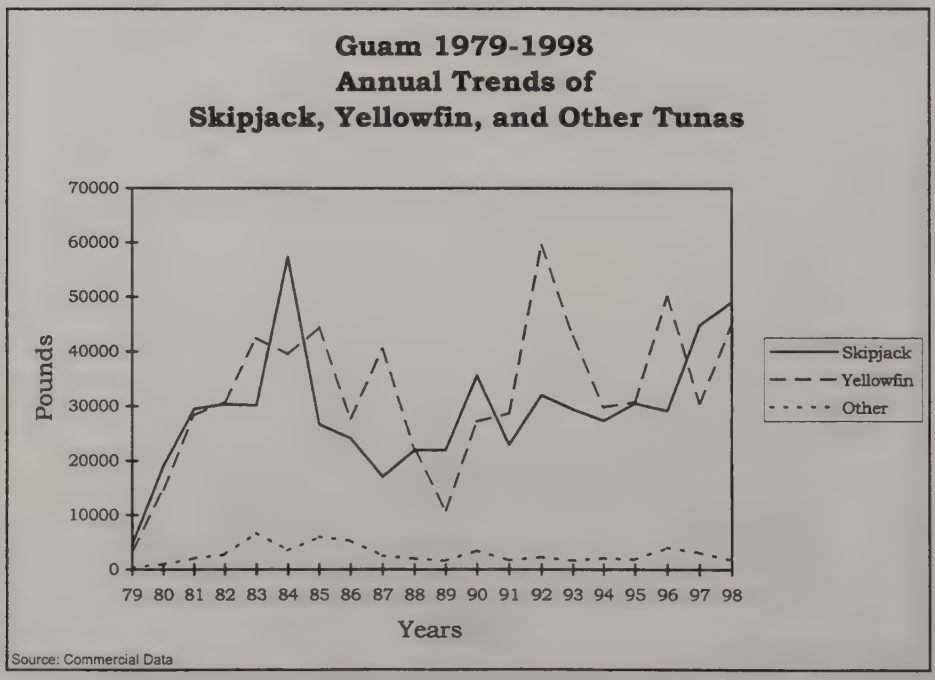

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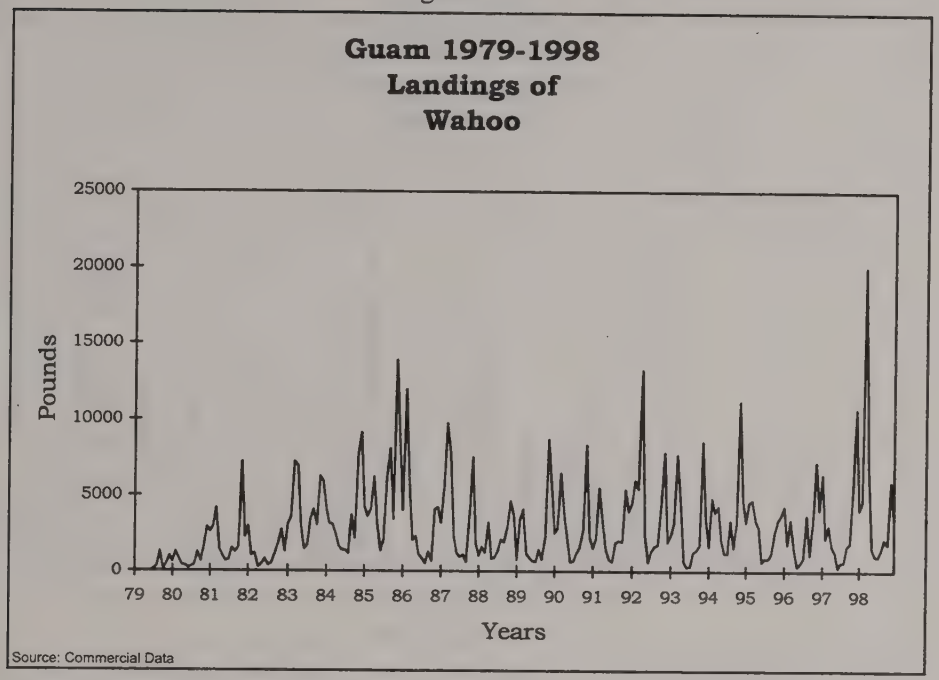

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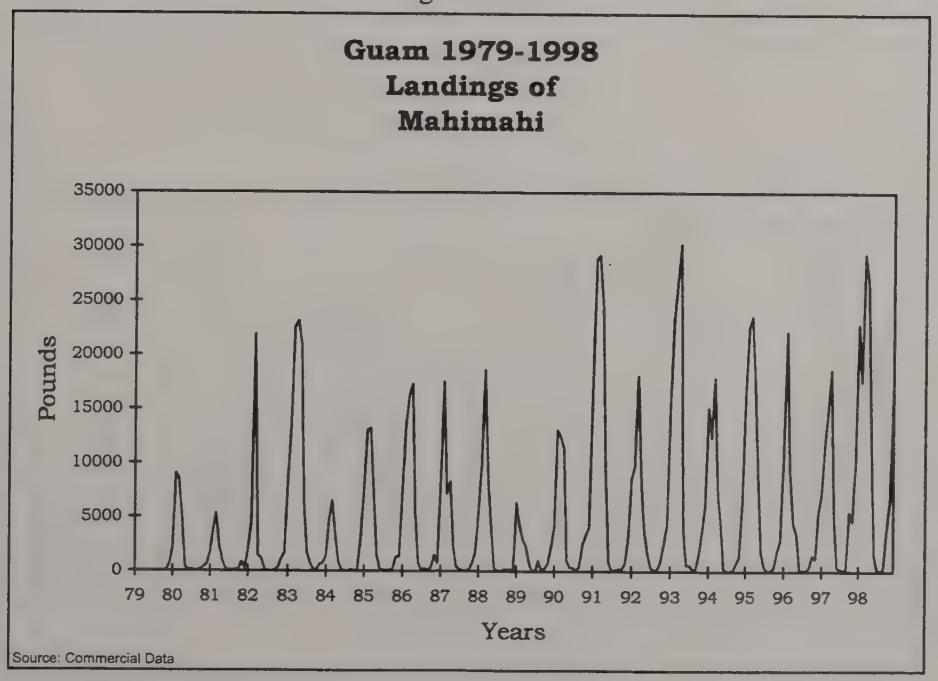

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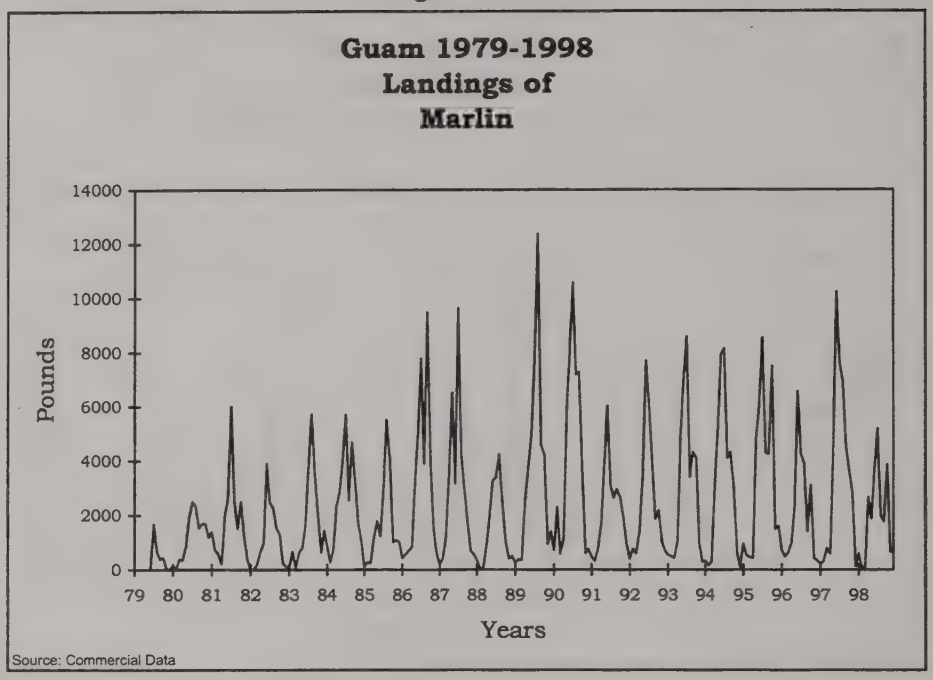

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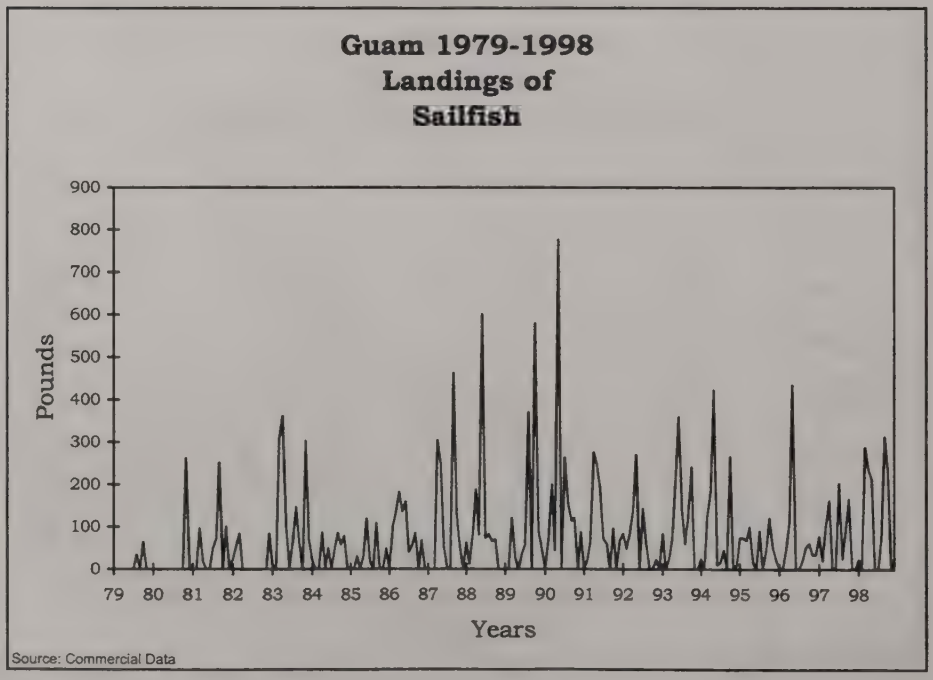

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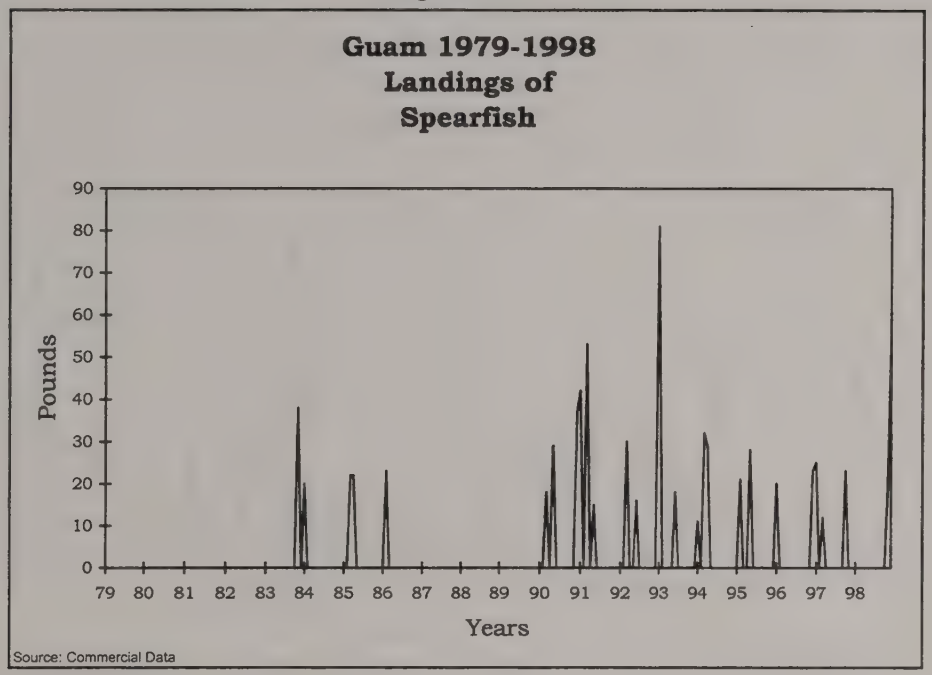

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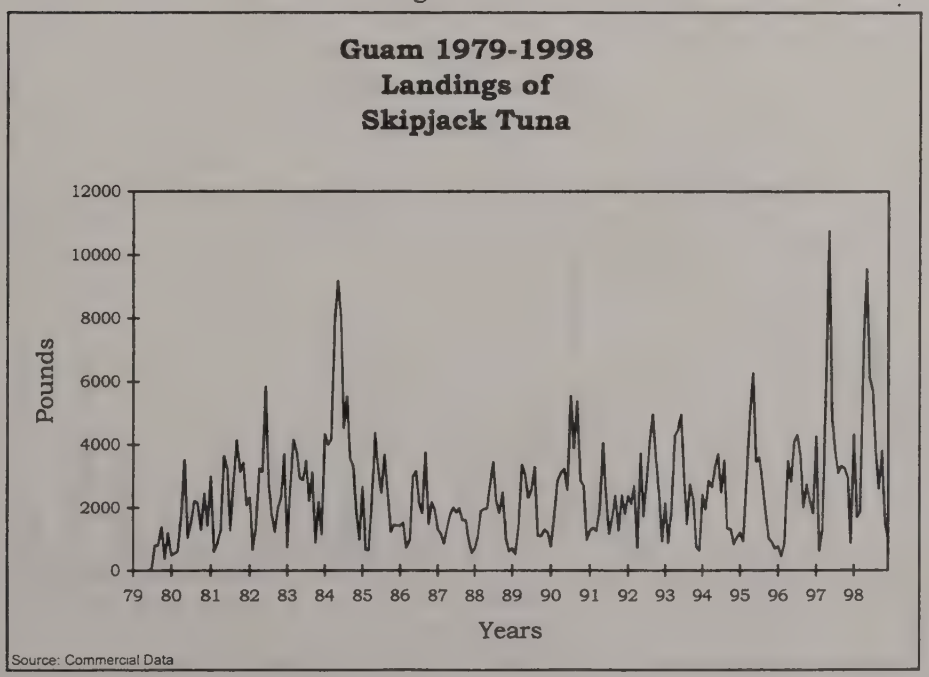

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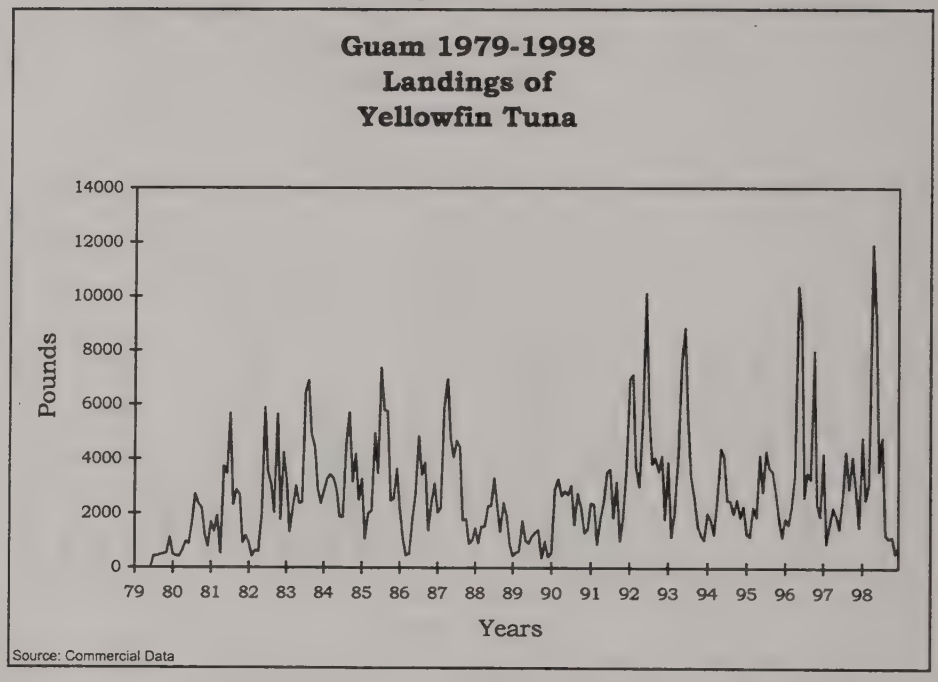

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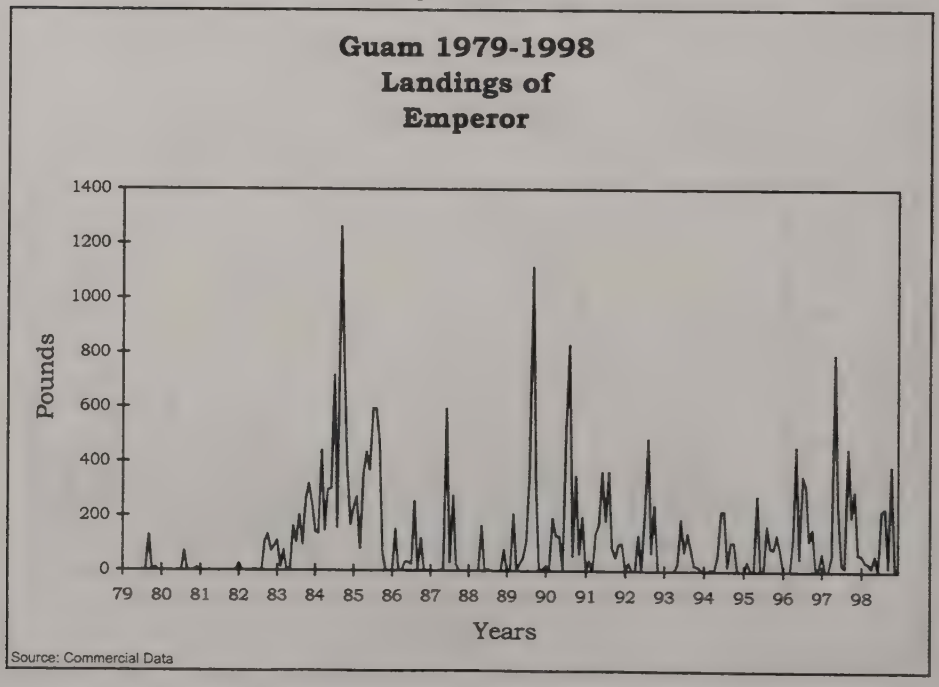

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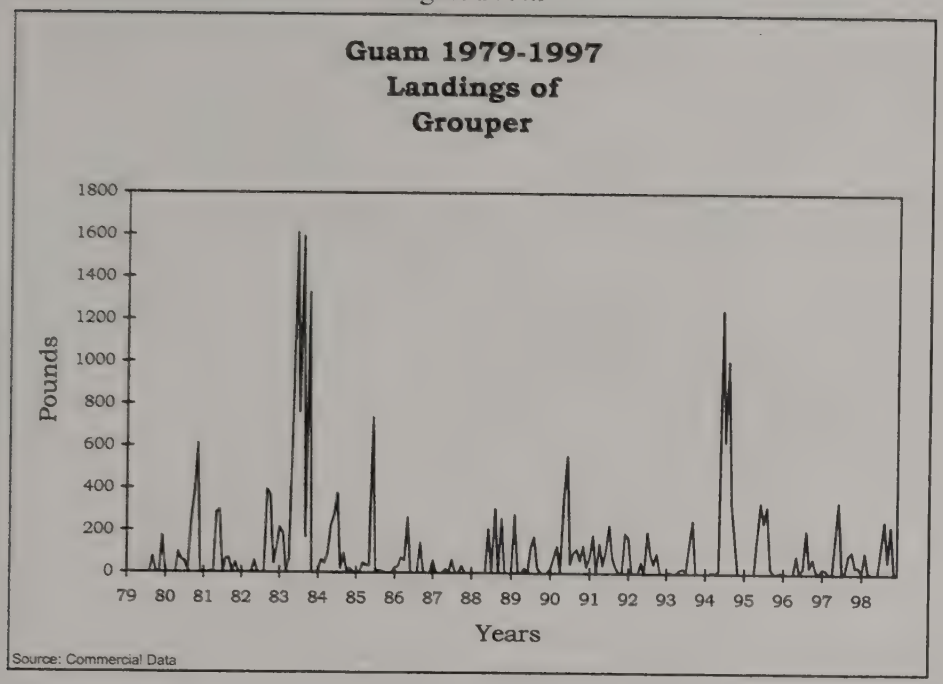
Guam 1979-1997
Landings of
Grouper
Pounds
1800
1600
1400
1200
1000
800
600
400
200
0
79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98
Years
Source: Commercial Data

HAWAII

Fishery Statistics
1998

STATE OF HAWAII 1998 FISHERY STATISTICS

Compiled by

Division of Aquatic Resources

and the

Western Pacific Fishery Information Network

August 2000

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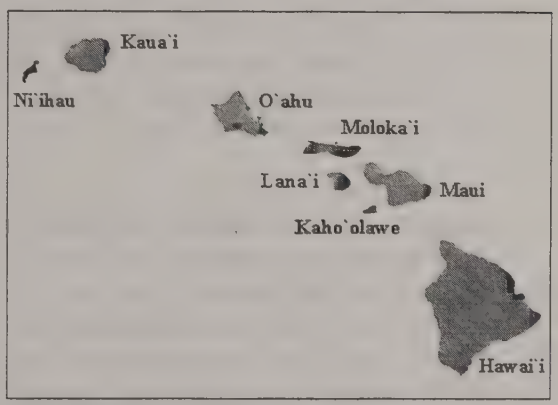
STATE OF HAWAII 1998 FISHERY STATISTICS

INTRODUCTION

The Hawaiian Archipelago stretches northwestward over 1,500 miles, from about lat. 19° N and long. 155° W to about lat. 28° N and long. 178° W. The seven main Hawaiian Islands — Hawai`i, Mau`i, Lana`i, Moloka`i, O`ahu, Kaua`i, and Ni`ihau — comprise over 99% of the total land area and have virtually all of the State's population of over 1.3 million residents. In 1998, over 80% of the State's recorded commercial catch was landed on Oahu, about 13% on Hawaii, 4% on Kauai, 2% on Maui, and less than 1% on other islands.



Hawaiian Islands; copied and modified from: <http://satftp.soest.hawaii.edu/space/hawaii/maps/All_Islands_map.710x509.gif>; *SOEST Satlab Server*

The Department of Land and Natural Resources' Division of Aquatic Resources (DAR) has been collecting statistics on the commercial fisheries of Hawaii for over 50 years.

The fisheries of the State of Hawaii are quite diverse; they vary from shore-based algae harvesting by hand to large-vessel fisheries such as longlining and lobster fishing. The major fisheries include tuna fishing through various methods, longlining for broadbill swordfish, lobster trapping, hook-and-line bottom fishing for the grouper-snapper-jack complex, net fishing for such species as the bigeye scad, and trolling for such pelagic species as marlin, wahoo, and mahimahi.

Commercial fishing (i.e., selling catches or providing charter fishing services) in Hawaii requires purchasing a commercial marine fishing license. In 1998, there were over 4,000 licensed commercial fishermen required to submit monthly reports to DAR, and of these approximately 2,700 vessels were used in their activities. The summary 1998 data provided in this document were created from licensed commercial fishermen reports processed by DAR as of April 2000; it is believed to represent about 99% of what may eventually be submitted and processed.

DATA COLLECTING SYSTEM

DAR's primary data collecting system is based on a State law that requires commercial fishermen to report their catches on a monthly basis. Several different data collection forms are used because of the diversity of fishing methods and a desire to obtain specific information on

some of these methods. The vast majority of commercial fishermen use the standard C-3 Fish Catch Report, which is submitted each month and requires the following information for each trip taken:

- Fisherman's name and commercial license number
- Boat's name and its registration number
- Date
- Area or buoy fished
- Type of gear used
- Species caught
- Number caught
- Pounds caught
- Pounds sold
- Value of sales
- Port of landing

The other forms used to report commercial catches are for specific fisheries. These include the C-4 Aku Catch Report for the pole-and-line or bait-boat fishery for skipjack tuna, the C-5 Flagline Catch Report for the longline fishery for tunas and other pelagic species, the Albacore Trolling Trip Report, and the Pond Operator's Monthly Fish Report for operators of saltwater fish ponds. All of the forms request basic catch and revenue information by species, plus additional fishery-specific information such as effort and bait. Commercial collectors of tropical marine fish are required to have an aquarium permit in addition to their commercial marine license and are required to report monthly on the C-6 Aquarium Fish Catch Report. The aquarium fish catch, however, is not included in the statistics provided in this document.

Some of the advantages of a mandatory fisherman-reporting system are its relative efficiency, low cost, the potential for excellent percent coverage, and the amount of information that can be collected directly from the fishermen. The major disadvantage is that it places the responsibility for data recording and timely data submission on the fishermen.

The assumption is made, therefore, that the data submitted by the fishermen are complete and accurate. The DAR is continuing its efforts to improve the quality of data and decrease the time delays in receiving and processing the data. No real measurement is available for what percent of the total commercial catch is actually reported to DAR, but estimates have ranged from about 10% to over 99%, depending on the species and fishery. The overall percent coverage was probably over 80% in 1998.

DATA PROCESSING SYSTEM

When DAR receives various data reporting forms, it codes and edits the data before sending it out for keypunching. Forms that fail the initial DAR staff editing are returned to the fishermen for correction and resubmission, or the fisherman may be contacted by telephone to resolve minor problems. Notices are sent to fishermen who fall more than a few months behind in the submission of their reports. Once the data are keypunched, DAR staff use computer-generated reports to verify and correct errors in the database. When the database is considered to be reasonably complete and error free, it is ready for use in production of various summary catch reports.

DATA REPORTING SYSTEM

More than 150 marine species and species groups are recorded in DAR's monthly landings reports, many of which are insignificant in the total catch. To help reduce this document's size and improve the usability of the tables, WPacFIN staff combined some of the less important species, reorganized the order of presentation, created a new species coding system, and translated all records in the database. The new coding system has 100 species and species groups based on flexible ecological and phylogenetic criteria. All of the commercially important pelagic and bottom fish species or unique species groups have individual codes and are reported separately. Marine pond catches are included in the species totals, but make up less than 0.4% of the total landings for each year.

The monthly and annual reports included in this document contain the common name, weight in pounds, value rounded to the nearest dollar, and the average price per pound for each species. Also included is a separate annual report for commercial fishermen's landings that were not sold. Each monthly report contains a subtotal for the sum of all species for that month, and the December report contains the December subtotal and the annual total. Annual reports contain the total landings for each species and the total recorded landings for all species combined for the calendar year.

Four graphs of monthly landings are presented for 1998, and 26 trend and seasonality graphs, based on 1979-97 data, are also provided. The following species, species groups, and abbreviations are used in the tables and graphs of Hawaii's fishery statistics:

I. Pelagic Management Unit Species (PMUS)

Although the Magnuson Fishery Conservation and Management Act of 1976 was amended in 1992 to include tunas in the Pacific PMUS (PPMUS), this report series will continue to specify tunas as a separate category from the PPMUS. The PMUS category in this report includes:

Mahimahi (dolphin)	Wahoo
Blue marlin	Black marlin
Striped marlin	Shortnose spearfish
Sailfish	Broadbill swordfish
Sharks	Billfish (misc.)

II. Bottomfish Management Unit Species (BMUS)

Deep water jacks (misc.)	Amberjack
Pig-lipped ulua (jack)	White Ulua
Giant sea bass	Blue lined snapper

Ehu (red snapper)	Gindai (flower snapper)
Kalekale (pink snapper)	Lehi (silverjaw snapper)
Onaga (long tailed snapper)	Opakapaka (pink snapper)
Uku (gray snapper)	

III. Billfish

Billfish	Blue Marlin
Black Marlin	Striped Marlin
Shortnose spearfish	Sailfish
Broadbill swordfish	

IV. Tunas

Tunas (misc.)	Skipjack tuna
Yellowfin tuna	Albacore
Bigeye tuna	Kawakawa
Dogtooth tuna	

V. Other Tunas

All of the previous tunas excluding skipjack and yellowfin tuna

VI. Fisheries Categories

A. Pelagic Species

All PMUS and tuna species including the following:

Rainbow runner	Barracuda
Japanese mackerel	Frigate tuna
Ocean sunfish	Ocean moonfish

B. Bottom Fish

All BMUS plus the following:

Blue crevally	Dobe ulua
Paapaa ulua	Blue spot grouper
Porgy	

C. Reef Fish

Reef jacks (misc.)
Trumpetfish
Mountain bass
Cardinalfish
Rudderfish
Damselfish
Tipapia
Parrotfish
Surgeonfish-tangs
Triggerfish
Pufferfish
Squirrelfish
Scorpionfish
Bigeyes
Goatfish
Butterflyfish
Hawkfish
Wrasse
Gobies
Flounders
Filefish

D. Other

Miscellaneous
Eels
Mackerel scad (opelu)
Anchovy
Bonefish
Milkfish
Needlefish
Threadfin
Pomfret
Freshwater fish
Slipper lobster
Shrimp (freshwater)
Octopus
Limpets (saltwater)
Clams
Precious Corals
Sea cucumbers
Algae
Rays
Bigeye scad (akule)
Leatherback
Ten pounder
Herring-sardine
Flyingfish
Halfbeaks
Mullet
Snake mackerel
Spiny lobster
Crabs
Shrimp (saltwater)
Squid
Limpets (freshwater)
Stoney corals
Sea urchins
Sea turtles

Table IV.1.1

Hawaii 1998 Annual Reported Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	8,017	13,097	1.63
Sharks	89,863	103,656	1.15
Eels	345	295	0.86
Alfonsin	59	174	2.94
Bigeye scad (akule)	1,369,087	1,871,989	1.37
Mackerel scad	216,669	369,744	1.71
Leatherback	712	1,201	1.69
Ten pounder	421	537	1.27
Bonefish	8,098	9,261	1.14
Herring/sardine	2	4	1.88
Milkfish	1,189	1,339	1.13
Flying fish	18	37	2.04
Needlefish	171	182	1.06
Threadfin	981	4,485	4.57
Mullet	4,038	11,140	2.76
Pomfret	229,688	330,252	1.44
Snake mackerel	282	328	1.16
Jacks (misc.)	32,922	65,974	2.00
Amberjack	2,708	2,387	0.88
Blue crevally	1,164	2,191	1.88
Pig-lipped ulua	38,754	54,239	1.40
Dobe ulua	4,125	6,912	1.68
Paapaa ulua	3,372	6,855	2.03
White ulua	8,637	11,946	1.38
Black ulua	786	1,142	1.45
Giant sea bass	80,584	203,903	2.53
Blue spot grouper	201	430	2.14
Snappers	3,388	11,523	3.40
Blue lined snapper	67,054	66,242	0.99
Ehu (red snapper)	38,521	138,448	3.59
Gindai (flower snapper)	7,838	20,589	2.63
Kalekale (pink snapper)	23,093	63,645	2.76
Lehi (silverjaw)	8,192	25,099	3.06
Onaga (red snapper)	102,529	511,220	4.99
Opakapaka (pink snapper)	214,191	946,488	4.42
Uku (gray snapper)	109,229	304,700	2.79
Porgy	2,021	4,974	2.46
Reef jacks	220	743	3.38
Squirrelfish	39,949	123,053	3.08
Trumpetfish	79	75	0.95
Scorpionfish	3,146	12,219	3.88
Mountain bass	2,873	9,344	3.25
Bigeyes	3,902	9,774	2.50
Cardinalfish	1	1	1.00
Goatfish	75,242	211,719	2.81
Rudderfish	13,325	14,973	1.12
Damselfish	1,718	3,174	1.85

Table IV.1.1 (Cont.)

Species	Pounds	Value	$/lb
Hawkfish	1,007	2,233	2.22
Tilapia	245	546	2.23
Wrasse	6,382	21,645	3.39
Parrotfish	33,370	76,946	2.31
Surgeon/tangs	91,974	120,944	1.31
Flounders	43	23	0.52
Filefish	2,072	4,026	1.94
Rainbow runner	6,727	8,809	1.31
Mahimahi (dolphin)	733,166	1,678,868	2.29
Barracudas	19,662	20,156	1.03
Wahoo	678,340	1,464,902	2.16
Tunas	18,735	110,447	5.90
Skipjack tuna	1,174,880	1,538,164	1.31
Yellowfin tuna	3,596,515	7,978,529	2.22
Albacore	2,806,760	3,405,802	1.21
Bigeye tuna	6,942,469	19,191,178	2.76
Kawakawa	7,178	8,619	1.20
Frigate tuna	20	25	1.24
Billfish	713	1,402	1.97
Broadbill swordfish	4,325,696	9,884,958	2.29
Blue marlin	935,460	1,039,470	1.11
Black marlin	10,173	12,201	1.20
Striped marlin	947,463	1,130,360	1.19
Shortnose spearfish	283,309	196,690	0.69
Sailfish	16,349	13,723	0.84
Ocean sunfish	10	1	0.10
Ocean moonfish	840,475	873,280	1.04
Spiny lobster	51,953	638,765	12.30
Slipper lobster	52,403	405,987	7.75
Crabs	48,642	196,453	4.04
Shrimp (saltwater)	169,583	725,864	4.28
Octopus	14,388	41,532	2.89
Squid	2,024	4,491	2.22
Limpets (saltwater)	12,103	54,405	4.50
Limpets (freshwater)	6	22	3.67
Precious corals	1,511	38,925	25.76
Sea cucumbers	116	920	7.93
Algae	4,866	27,604	5.67
** TOTAL **	26,656,192	56,470,614	2.12

Hawaii 1998 Annual Reported Commercial Landings (not sold)

Species	Pounds
Miscellaneous	1,032
Sharks	113,947
Eels	140
Alfonsin	27
Armorhead	12
Bigeye scad (akule)	160,880
Mackerel scad	12,704
Leatherback	92
Ten pounder	42
Bonefish	1,057
Herring/sardine	2
Milkfish	223
Needlefish	23
Threadfin	863
Mullet	400
Pomfret	1,030
Snake mackerel	3,624
Jacks (misc.)	8,969
Amberjack	19,577
Blue crevally	621
Pig-lipped ulua	2,624
Paapaa ulua	419
White ulua	666
Black ulua	30
Giant sea bass	3,415
Blue spot grouper	145
Snappers	269
Blue lined snapper	7,615
Ehu (red snapper)	3,179
Gindai (flower snapper)	742
Kalekale (pink snapper)	2,354
Lehi (silverjaw)	501
Onaga (red snapper)	6,517
Opakapaka (pink snapper)	10,507
Uku (gray snapper)	7,443
Porgy	206
Reef jacks	17
Squirrelfish	2,679
Trumpetfish	1
Scorpionfish	531
Mountain bass	862
Bigeyes	794
Cardinalfish	10
Goatfish	7,073
Rudderfish	2,173
Damselfish	28
Hawkfish	25
Wrasse	1,723

Table IV.1.2 (Cont.)

Species	Pounds
Parrotfish	2,503
Surgeon/tangs	4,012
Flounders	9
Triggerfish	115
Filefish	33
Rainbow runner	667
Mahimahi (dolphin)	65,381
Barracudas	1,377
Wahoo	66,021
Tunas	606
Skipjack tuna	107,448
Yellowfin tuna	146,762
Albacore	37,472
Bigeye tuna	49,761
Kawakawa	3,799
Frigate tuna	24
Billfish	75
Broadbill swordfish	10,249
Blue marlin	68,928
Black marlin	300
Striped marlin	13,755
Shortnose spearfish	19,614
Sailfish	645
Ocean sunfish	426
Ocean moonfish	1,680
Spiny lobster	2,472
Slipper lobster	195
Crabs	5,414
Shrimp (saltwater)	5,588
Octopus	7,395
Squid	442
Limpets (saltwater)	1,833
Limpets (freshwater)	10
Precious corals	23
Algae	1,142
** TOTAL **	1,013,989

Table IV.1.3

Hawaii January 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	3,727	4,957	1.33
Sharks	11,534	10,459	0.91
Eels	43	30	0.70
Alfonsin	13	39	3.00
Bigeye scad (akule)	136,142	190,475	1.40
Mackerel scad	16,346	25,597	1.57
Leatherback	71	123	1.74
Ten pounder	42	59	1.40
Bonefish	858	1,113	1.30
Milkfish	22	33	1.50
Needlefish	7	11	1.50
Threadfin	84	409	4.87
Mullet	82	263	3.21
Pomfret	12,934	23,505	1.82
Jacks (misc.)	4,263	8,619	2.02
Amberjack	262	273	1.04
Blue crevally	153	275	1.80
Pig-lipped ulua	2,479	4,768	1.92
Paapaa ulua	235	540	2.30
White ulua	626	1,005	1.61
Black ulua	19	48	2.50
Giant sea bass	5,580	19,326	3.46
Blue spot grouper	6	20	3.33
Snappers	771	2,857	3.71
Blue lined snapper	8,293	7,921	0.96
Ehu (red snapper)	5,522	19,609	3.55
Gindai (flower snapper)	821	2,375	2.89
Kalekale (pink snapper)	5,806	14,339	2.47
Lehi (silverjaw)	2,075	6,534	3.15
Onaga (red snapper)	13,733	68,131	4.96
Opakapaka (pink snapper)	37,606	154,982	4.12
Uku (gray snapper)	9,922	26,176	2.64
Porgy	57	171	2.99
Reef jacks	15	53	3.55
Squirrelfish	2,264	7,192	3.18
Trumpetfish	15	23	1.50
Scorpionfish	664	2,406	3.62
Mountain bass	325	874	2.69
Bigeyes	535	1,331	2.49
Goatfish	7,545	23,782	3.15
Rudderfish	1,163	991	0.85
Damselfish	137	229	1.67
Hawkfish	57	133	2.33
Wrasse	976	2,930	3.00
Parrotfish	2,497	5,713	2.29
Surgeon/tangs	6,256	7,601	1.21

Table IV.1.3 (Cont.)

Species	Pounds	Value	$/lb
Flounders	2	2	0.75
Hawkfish	57	133	2.33
Wrasse	976	2,930	3.00
Parrotfish	2,497	5,713	2.29
Surgeon/tangs	6,256	7,601	1.21
Flounders	2	2	0.75
Filefish	94	155	1.65
Rainbow runner	311	411	1.32
Mahimahi (dolphin)	20,709	61,980	2.99
Barracudas	579	659	1.14
Wahoo	19,211	74,129	3.86
Tunas	2,728	25,768	9.45
Skipjack tuna	39,940	92,592	2.32
Yellowfin tuna	134,794	352,203	2.61
Albacore	112,491	177,499	1.58
Bigeye tuna	691,197	2,351,036	3.40
Kawakawa	1,241	1,246	1.00
Frigate tuna	3	2	0.75
Billfish	713	1,402	1.97
Broadbill swordfish	297,074	972,970	3.28
Blue marlin	63,076	88,871	1.41
Black marlin	887	1,643	1.85
Striped marlin	62,033	106,627	1.72
Shortnose spearfish	17,245	17,599	1.02
Sailfish	900	1,273	1.41
Ocean moonfish	61,920	81,968	1.32
Spiny lobster	1,042	9,282	8.91
Slipper lobster	86	1,022	11.88
Crabs	6,091	27,148	4.46
Shrimp (saltwater)	2,802	22,231	7.93
Octopus	579	1,644	2.84
Squid	76	214	2.81
Limpets (saltwater)	736	3,178	4.32
Limpets (freshwater)	6	22	3.67
Algae	621	3,989	6.42
** SUBTOTAL **	1,841,770	5,127,065	2.78

Table IV.1.4

Hawaii February 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	209	281	1.35
Sharks	7,813	8,461	1.08
Eels	73	46	0.63
Bigeye scad (akule)	168,364	231,345	1.37
Mackerel scad	17,215	28,439	1.65
Leatherback	14	11	0.80
Ten pounder	45	67	1.49
Bonefish	523	696	1.33
Needlefish	3	0	0.10
Threadfin	198	945	4.77
Mullet	46	130	2.83
Pomfret	13,534	27,584	2.04
Jacks (misc.)	2,503	5,102	2.04
Amberjack	1,216	984	0.81
Blue crevally	91	214	2.36
Pig-lipped ulua	3,178	6,160	1.94
Dobe ulua	174	434	2.49
Paapaa ulua	91	177	1.95
White ulua	837	828	0.99
Black ulua	54	172	3.19
Giant sea bass	4,812	17,525	3.64
Snappers	106	417	3.93
Blue lined snapper	6,077	5,697	0.94
Ehu (red snapper)	3,731	13,996	3.75
Gindai (flower snapper)	810	2,247	2.77
Kalekale (pink snapper)	2,190	6,109	2.79
Lehi (silverjaw)	705	2,212	3.14
Onaga (red snapper)	9,572	53,612	5.60
Opakapaka (pink snapper)	22,320	105,691	4.74
Uku (gray snapper)	11,316	37,680	3.33
Porgy	97	238	2.45
Squirrelfish	2,913	9,037	3.10
Trumpetfish	5	8	1.50
Scorpionfish	292	1,121	3.84
Mountain bass	380	1,240	3.26
Bigeyes	157	402	2.56
Goatfish	4,738	13,966	2.95
Rudderfish	304	456	1.50
Damselfish	45	88	1.95
Hawkfish	24	50	2.08
Wrasse	588	2,219	3.77
Surgeon/tangs	8,153	10,607	1.30
Flounders	6	6	0.92
Filefish	36	66	1.83
Rainbow runner	4,305	5,358	1.24
Parrotfish	3,234	7,307	2.26

Table IV.1.4 (Cont.)

Species	Pounds	Value	$/lb
Mahimahi (dolphin)	32,948	93,959	2.85
Barracudas	1,021	1,336	1.31
Wahoo	13,666	53,671	3.93
Tunas	2,118	18,845	8.90
Skipjack tuna	19,833	47,556	2.40
Yellowfin tuna	180,167	373,589	2.07
Albacore	226,501	325,657	1.44
Bigeye tuna	632,186	2,010,950	3.18
Kawakawa	430	477	1.11
Frigate tuna	2	4	2.00
Broadbill swordfish	284,429	848,706	2.98
Blue marlin	66,251	78,144	1.18
Black marlin	2,253	3,402	1.51
Striped marlin	75,642	113,293	1.50
Shortnose spearfish	22,532	21,312	0.95
Sailfish	107	138	1.29
Ocean sunfish	10	1	0.10
Ocean moonfish	59,335	96,116	1.62
Spiny lobster	1,076	10,017	9.31
Slipper lobster	159	1,805	11.35
Crabs	3,633	16,466	4.53
Shrimp (saltwater)	1,461	10,900	7.46
Octopus	840	2,350	2.80
Squid	30	83	2.77
Limpets (saltwater)	445	1,863	4.19
Algae	534	3,494	6.54
** SUBTOTAL **	1,930,706	4,743,564	2.46

Table IV.1.5

Hawaii March 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	518	662	1.28
Sharks	4,881	7,209	1.48
Eels	23	24	1.04
Bigeye scad (akule)	176,861	234,212	1.32
Mackerel scad	15,506	26,254	1.69
Leatherback	101	192	1.90
Ten pounder	54	69	1.28
Bonefish	1,000	1,088	1.09
Milkfish	82	122	1.48
Needlefish	27	41	1.50
Threadfin	140	554	3.96
Mullet	850	2,263	2.66
Pomfret	16,234	33,571	2.07
Jacks (misc.)	3,894	7,799	2.00
Amberjack	624	489	0.78
Blue crevally	137	290	2.11
Pig-lipped ulua	4,217	6,866	1.63
Dobe ulua	747	1,069	1.43
Paapaa ulua	179	490	2.74
White ulua	867	1,299	1.50
Black ulua	197	338	1.72
Giant sea bass	6,897	17,830	2.59
Blue spot grouper	20	36	1.79
Snappers	399	1,340	3.36
Blue lined snapper	5,318	5,353	1.01
Ehu (red snapper)	6,505	23,026	3.54
Gindai (flower snapper)	1,624	3,840	2.36
Kalekale (pink snapper)	5,153	13,459	2.61
Lehi (silverjaw)	775	2,433	3.14
Onaga (red snapper)	9,397	48,967	5.21
Opakapaka (pink snapper)	25,826	116,702	4.52
Uku (gray snapper)	14,411	42,344	2.94
Porgy	290	766	2.64
Squirrelfish	3,196	9,861	3.09
Scorpionfish	373	1,459	3.91
Mountain bass	282	893	3.17
Bigeyes	520	1,313	2.53
Goatfish	7,231	19,869	2.75
Rudderfish	1,196	1,327	1.11
Damselfish	82	124	1.52
Hawkfish	267	584	2.19
Wrasse	975	3,078	3.16
Parrotfish	3,782	8,506	2.25
Surgeon/tangs	7,932	10,506	1.32
Flounders	4	4	1.03
Filefish	236	462	1.96

Table IV.1.5 (Cont.)

Species	Pounds	Value	$/lb
Rainbow runner	135	176	1.30
Mahimahi (dolphin)	49,056	139,207	2.84
Barracudas	1,360	2,197	1.62
Wahoo	38,846	119,808	3.08
Tunas	3,233	20,831	6.44
Skipjack tuna	28,105	55,712	1.98
Yellowfin tuna	366,557	746,668	2.04
Albacore	72,500	127,942	1.76
Bigeye tuna	1,034,598	2,534,526	2.45
Kawakawa	503	899	1.79
Frigate tuna	6	7	1.10
Broadbill swordfish	708,022	1,857,848	2.62
Blue marlin	42,140	61,508	1.46
Black marlin	343	538	1.57
Striped marlin	23,486	60,098	2.56
Shortnose spearfish	9,269	14,660	1.58
Sailfish	1,770	3,290	1.86
Ocean moonfish	17,045	36,212	2.12
Spiny lobster	1,569	15,968	10.18
Slipper lobster	32	239	7.46
Crabs	4,482	18,953	4.23
Shrimp (saltwater)	164	1,147	6.99
Octopus	838	2,337	2.79
Limpets (saltwater)	1,407	5,442	3.87
Precious corals	94	2,500	26.60
Algae	431	2,758	6.40
** SUBTOTAL **	2,735,821	6,490,455	2.37

Table IV.1.6

Hawaii April 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	604	1,335	2.21
Sharks	4,138	4,745	1.15
Eels	42	38	0.90
Bigeye scad (akule)	207,256	280,875	1.36
Mackerel scad	14,489	24,256	1.67
Leatherback	38	79	2.08
Ten pounder	40	49	1.22
Bonefish	606	678	1.12
Milkfish	200	240	1.20
Flying fish	13	30	2.28
Needlefish	3	5	1.67
Threadfin	130	489	3.76
Mullet	240	564	2.35
Pomfret	17,439	34,549	1.98
Snake mackerel	266	308	1.16
Jacks (misc.)	2,456	4,790	1.95
Amberjack	50	50	1.00
Blue crevally	156	245	1.57
Pig-lipped ulua	2,004	3,238	1.62
Dobe ulua	852	1,431	1.68
Paapaa ulua	76	218	2.87
White ulua	915	1,404	1.53
Giant sea bass	6,849	13,226	1.93
Blue spot grouper	5	15	3.00
Snappers	118	428	3.63
Blue lined snapper	6,295	6,276	1.00
Ehu (red snapper)	1,534	6,350	4.14
Gindai (flower snapper)	412	1,169	2.84
Kalekale (pink snapper)	602	1,891	3.14
Lehi (silverjaw)	255	742	2.91
Onaga (red snapper)	4,447	23,586	5.30
Opakapaka (pink snapper)	10,050	55,132	5.49
Uku (gray snapper)	3,451	13,653	3.96
Porgy	136	391	2.88
Squirrelfish	2,284	6,206	2.72
Trumpetfish	2	3	1.50
Scorpionfish	215	855	3.98
Mountain bass	298	1,211	4.07
Bigeyes	252	590	2.34
Goatfish	5,531	14,721	2.66
Rudderfish	638	874	1.37
Damselfish	28	47	1.67
Hawkfish	222	514	2.32
Wrasse	324	1,397	4.31
Parrotfish	1,671	3,741	2.24
Surgeon/tangs	5,451	7,474	1.37

Table IV.1.6 (Cont.)

Species	Pounds	Value	$/lb
Filefish	513	1,014	1.98
Rainbow runner	63	85	1.34
Mahimahi (dolphin)	79,788	201,033	2.52
Barracudas	1,043	1,485	1.42
Wahoo	77,110	180,730	2.34
Tunas	1,710	8,818	5.16
Skipjack tuna	46,925	66,140	1.41
Yellowfin tuna	249,540	623,889	2.50
Albacore	222,047	302,904	1.36
Bigeye tuna	675,924	2,022,922	2.99
Kawakawa	714	969	1.36
Frigate tuna	6	9	1.50
Broadbill swordfish	870,039	1,724,898	1.98
Blue marlin	39,025	68,069	1.74
Black marlin	641	1,099	1.72
Striped marlin	30,276	72,635	2.40
Shortnose spearfish	9,297	11,277	1.21
Sailfish	1,026	1,709	1.67
Ocean moonfish	25,449	44,860	1.76
Spiny lobster	858	7,482	8.72
Slipper lobster	20	144	7.20
Crabs	4,607	18,862	4.09
Shrimp (saltwater)	152	1,103	7.25
Octopus	557	1,609	2.89
Squid	69	197	2.86
Limpets (saltwater)	893	4,393	4.92
Precious corals	28	1,500	53.57
Algae	294	2,196	7.47
** SUBTOTAL **	2,641,697	5,892,133	2.23

Table IV.1.7

Hawaii May 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	208	312	1.50
Sharks	5,635	5,883	1.04
Eels	15	12	0.80
Bigeye scad (akule)	99,370	129,283	1.30
Mackerel scad	10,390	18,661	1.80
Leatherback	27	43	1.61
Ten pounder	28	27	0.95
Bonefish	668	694	1.04
Milkfish	315	297	0.94
Needlefish	6	6	1.00
Threadfin	200	895	4.48
Mullet	276	692	2.51
Pomfret	27,704	24,802	0.90
Jacks (misc.)	2,608	4,889	1.87
Blue crevally	27	47	1.73
Pig-lipped ulua	3,065	2,712	0.88
Dobe ulua	665	1,130	1.70
Paapaa ulua	167	354	2.12
White ulua	293	325	1.11
Giant sea bass	4,740	7,596	1.60
Blue spot grouper	28	59	2.11
Snappers	250	799	3.20
Blue lined snapper	4,979	4,658	0.94
Ehu (red snapper)	2,014	5,953	2.96
Gindai (flower snapper)	505	1,074	2.13
Kalekale (pink snapper)	634	1,562	2.46
Lehi (silverjaw)	352	833	2.37
Onaga (red snapper)	3,922	20,013	5.10
Opakapaka (pink snapper)	9,811	43,418	4.43
Uku (gray snapper)	5,444	15,324	2.81
Porgy	211	509	2.41
Reef jacks	172	589	3.43
Squirrelfish	2,724	8,397	3.08
Trumpetfish	3	1	0.33
Scorpionfish	149	469	3.15
Mountain bass	251	665	2.65
Bigeyes	470	1,206	2.57
Cardinalfish	1	1	1.00
Goatfish	4,475	12,510	2.80
Rudderfish	1,150	1,575	1.37
Damselfish	31	61	1.97
Hawkfish	144	342	2.38
Tilapia	186	460	2.47
Wrasse	131	220	1.68
Parrotfish	2,888	6,702	2.32
Surgeon/tangs	10,429	14,114	1.35

Table IV.1.7 (Cont.)

Species	Pounds	Value	$/lb
Filefish	574	1,124	1.96
Rainbow runner	37	53	1.42
Mahimahi (dolphin)	76,701	172,366	2.25
Barracudas	3,000	2,896	0.97
Wahoo	98,620	178,004	1.80
Tunas	480	1,075	2.24
Skipjack tuna	72,153	92,302	1.28
Yellowfin tuna	256,873	545,763	2.12
Albacore	236,058	314,405	1.33
Bigeye tuna	680,840	1,844,201	2.71
Kawakawa	423	559	1.32
Frigate tuna	3	3	1.00
Broadbill swordfish	590,435	1,067,091	1.81
Blue marlin	39,667	57,654	1.45
Black marlin	697	626	0.90
Striped marlin	55,569	109,743	1.97
Shortnose spearfish	21,708	17,508	0.81
Sailfish	303	225	0.74
Ocean moonfish	35,723	47,697	1.34
Slipper lobster	4	26	6.56
Crabs	388	1,559	4.02
Shrimp (saltwater)	172	1,204	7.00
Octopus	955	2,786	2.92
Limpets (saltwater)	1,452	6,167	4.25
Algae	368	2,688	7.31
** SUBTOTAL **	2,380,964	4,807,901	2.02

Table IV.1.8

Hawaii June 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	272	337	1.24
Sharks	6,268	3,940	0.63
Eels	12	8	0.67
Alfonsin	16	35	2.19
Bigeye scad (akule)	135,314	160,826	1.19
Mackerel scad	20,159	32,043	1.59
Leatherback	27	41	1.51
Ten pounder	17	17	1.01
Bonefish	443	533	1.20
Milkfish	41	56	1.36
Flying fish	4	5	1.31
Needlefish	52	46	0.88
Threadfin	15	67	4.47
Mullet	181	378	2.09
Pomfret	22,195	22,549	1.02
Jacks (misc.)	2,611	5,670	2.17
Amberjack	55	38	0.69
Blue crevally	120	225	1.88
Pig-lipped ulua	1,725	2,413	1.40
Dobe ulua	345	610	1.77
Paapaa ulua	370	946	2.56
White ulua	60	67	1.12
Black ulua	22	30	1.35
Giant sea bass	6,011	16,753	2.79
Blue spot grouper	18	35	1.96
Snappers	520	1,918	3.69
Blue lined snapper	3,095	3,041	0.98
Ehu (red snapper)	2,759	9,743	3.53
Gindai (flower snapper)	672	1,974	2.94
Kalekale (pink snapper)	995	3,161	3.18
Lehi (silverjaw)	197	521	2.64
Onaga (red snapper)	3,156	20,007	6.34
Opakapaka (pink snapper)	13,837	61,448	4.44
Uku (gray snapper)	12,280	28,428	2.31
Porgy	78	211	2.71
Reef jacks	16	48	3.00
Squirrelfish	2,613	7,906	3.03
Trumpetfish	2	3	1.50
Scorpionfish	147	654	4.45
Mountain bass	163	501	3.07
Bigeyes	276	681	2.47
Goatfish	4,321	12,309	2.85
Rudderfish	707	1,029	1.45
Damselfish	79	142	1.80
Hawkfish	114	234	2.05
Wrasse	389	1,278	3.29

Table IV.1.8 (Cont.)

Species	Pounds	Value	$/lb
Parrotfish	2,227	5,217	2.34
Surgeon/tangs	6,958	8,594	1.24
Filefish	343	677	1.97
Rainbow runner	70	84	1.19
Mahimahi (dolphin)	50,702	120,334	2.37
Barracudas	3,281	2,028	0.62
Wahoo	106,095	166,040	1.57
Tunas	1,000	5,000	5.00
Skipjack tuna	129,900	121,440	0.93
Yellowfin tuna	507,209	1,159,813	2.29
Albacore	608,823	555,560	0.91
Bigeye tuna	312,476	682,246	2.18
Kawakawa	600	673	1.12
Broadbill swordfish	568,377	1,284,085	2.26
Blue marlin	58,197	67,165	1.15
Black marlin	1,484	973	0.66
Striped marlin	90,920	107,440	1.18
Shortnose spearfish	19,959	13,774	0.69
Sailfish	469	440	0.94
Ocean moonfish	53,151	52,131	0.98
Crabs	814	2,899	3.56
Shrimp (saltwater)	5,835	35,149	6.02
Octopus	651	1,924	2.95
Squid	132	393	2.98
Limpets (saltwater)	1,387	6,735	4.86
Precious corals	257	6,625	25.78
Algae	584	4,126	7.07
** SUBTOTAL **	2,774,670	4,814,471	1.74

Table IV.1.9

Hawaii July 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	534	1,114	2.09
Sharks	6,708	4,390	0.65
Eels	6	5	0.83
Bigeye scad (akule)	122,262	157,716	1.29
Mackerel scad	10,424	20,511	1.97
Leatherback	121	176	1.45
Ten pounder	6	8	1.25
Bonefish	198	240	1.21
Milkfish	131	119	0.91
Needlefish	3	4	1.25
Mullet	515	1,539	2.99
Pomfret	29,378	34,127	1.16
Jacks (misc.)	2,648	5,332	2.01
Blue crevally	89	270	3.03
Pig-lipped ulua	1,538	2,498	1.62
Dobe ulua	25	56	2.23
Paapaa ulua	167	477	2.86
White ulua	832	1,163	1.40
Giant sea bass	7,959	20,824	2.62
Blue spot grouper	46	101	2.20
Snappers	221	786	3.56
Blue lined snapper	7,692	7,816	1.02
Ehu (red snapper)	3,016	10,852	3.60
Gindai (flower snapper)	585	1,759	3.01
Kalekale (pink snapper)	680	2,201	3.24
Lehi (silverjaw)	112	313	2.79
Onaga (red snapper)	4,569	27,738	6.07
Opakapaka (pink snapper)	9,408	46,926	4.99
Uku (gray snapper)	11,105	37,679	3.39
Porgy	230	583	2.53
Reef jacks	2	3	1.32
Squirrelfish	2,968	9,167	3.09
Trumpetfish	2	2	1.00
Scorpionfish	219	811	3.70
Mountain bass	136	456	3.35
Bigeyes	290	673	2.32
Goatfish	6,933	20,223	2.92
Rudderfish	580	751	1.29
Damselfish	56	102	1.82
Hawkfish	36	67	1.85
Tilapia	21	10	0.49
Wrasse	391	1,080	2.76
Parrotfish	4,041	9,955	2.46
Surgeon/tangs	9,417	12,801	1.36
Flounders	24	2	0.10

Table IV.1.9 (Cont.)

Species	Pounds	Value	$/lb
Filefish	93	181	1.94
Rainbow runner	130	162	1.25
Mahimahi (dolphin)	35,467	98,913	2.79
Barracudas	2,015	2,400	1.19
Wahoo	95,643	155,693	1.63
Tunas	1,814	3,094	1.71
Skipjack tuna	94,978	107,089	1.13
Yellowfin tuna	573,527	1,190,734	2.08
Albacore	323,731	366,697	1.13
Bigeye tuna	229,893	543,114	2.36
Kawakawa	709	886	1.25
Broadbill swordfish	363,955	769,805	2.12
Blue marlin	131,419	122,291	0.93
Black marlin	884	579	0.65
Striped marlin	73,257	67,985	0.93
Shortnose spearfish	17,833	11,517	0.65
Sailfish	950	711	0.75
Ocean moonfish	64,787	67,585	1.04
Crabs	1,932	6,556	3.39
Shrimp (saltwater)	3,007	18,070	6.01
Octopus	1,804	5,187	2.88
Squid	32	63	1.97
Limpets (saltwater)	1,290	6,286	4.87
Precious corals	160	4,000	25.00
Algae	545	2,310	4.24
** SUBTOTAL **	2,266,179	3,995,331	1.76

Table IV.1.10

Hawaii August 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	766	1,879	2.45
Sharks	4,134	4,998	1.21
Eels	17	16	0.92
Bigeye scad (akule)	59,572	83,270	1.40
Mackerel scad	9,118	17,215	1.89
Leatherback	146	259	1.77
Ten pounder	65	73	1.13
Bonefish	472	482	1.02
Herring/sardine	1	2	2.00
Milkfish	120	161	1.34
Flying fish	1	2	1.87
Threadfin	19	91	4.76
Mullet	242	646	2.67
Pomfret	17,660	35,820	2.03
Jacks (misc.)	2,229	4,454	2.00
Amberjack	113	119	1.05
Blue crevally	131	235	1.80
Pig-lipped ulua	1,686	2,277	1.35
Paapaa ulua	338	658	1.95
White ulua	1,053	1,380	1.31
Black ulua	19	13	0.70
Giant sea bass	5,531	14,621	2.64
Blue spot grouper	30	63	2.09
Snappers	305	1,005	3.29
Blue lined snapper	7,435	7,799	1.05
Ehu (red snapper)	2,500	9,417	3.77
Gindai (flower snapper)	519	1,124	2.17
Kalekale (pink snapper)	847	2,740	3.24
Lehi (silverjaw)	569	1,611	2.83
Onaga (red snapper)	3,778	24,620	6.52
Opakapaka (pink snapper)	13,987	59,705	4.27
Uku (gray snapper)	14,977	31,418	2.10
Porgy	145	359	2.48
Reef jacks	10	38	3.75
Squirrelfish	5,850	18,225	3.12
Trumpetfish	7	7	0.95
Scorpionfish	268	1,230	4.59
Mountain bass	274	995	3.63
Bigeyes	416	1,079	2.59
Goatfish	7,422	19,160	2.58
Rudderfish	873	895	1.03
Damselfish	95	182	1.92
Hawkfish	68	151	2.22
Tilapia	2	2	1.00
Wrasse	571	1,612	2.82

Table IV.1.10 (Cont.)

Species	Pounds	Value	$/lb
Parrotfish	3,453	8,209	2.38
Surgeon/tangs	7,262	9,478	1.31
Flounders	7	9	1.29
Filefish	73	145	1.99
Rainbow runner	160	206	1.29
Mahimahi (dolphin)	35,906	99,382	2.77
Barracudas	2,295	2,178	0.95
Wahoo	73,496	167,117	2.27
Tunas	794	7,502	9.45
Skipjack tuna	143,916	189,123	1.31
Yellowfin tuna	333,189	750,698	2.25
Albacore	311,298	389,755	1.25
Bigeye tuna	292,531	781,796	2.67
Kawakawa	477	558	1.17
Broadbill swordfish	221,851	434,220	1.96
Blue marlin	128,266	138,993	1.08
Black marlin	1,759	2,122	1.21
Striped marlin	23,568	41,112	1.74
Shortnose spearfish	15,118	16,572	1.10
Sailfish	533	504	0.95
Ocean moonfish	67,027	75,164	1.12
Spiny lobster	28,675	327,385	11.42
Slipper lobster	39,543	314,559	7.95
Crabs	3,550	12,260	3.45
Shrimp (saltwater)	16,322	81,845	5.01
Octopus	1,945	5,600	2.88
Squid	577	989	1.71
Limpets (saltwater)	1,105	4,941	4.47
Precious corals	150	3,750	25.00
Sea cucumbers	25	200	8.00
Algae	809	1,908	2.36
** SUBTOTAL **	1,920,061	4,220,387	2.20

Table IV.1.11

Hawaii September 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	469	1,129	2.41
Sharks	4,871	5,145	1.06
Eels	65	62	0.95
Bigeye scad (akule)	92,041	135,835	1.48
Mackerel scad	21,392	40,252	1.88
Leatherback	31	37	1.20
Ten pounder	36	57	1.58
Bonefish	534	656	1.23
Herring/sardine	1	2	1.75
Milkfish	263	290	1.10
Threadfin	97	346	3.56
Mullet	296	900	3.04
Pomfret	11,524	24,573	2.13
Jacks (misc.)	2,696	5,490	2.04
Amberjack	13	20	1.50
Blue crevally	6	14	2.33
Pig-lipped ulua	4,431	5,821	1.31
Dobe ulua	319	496	1.55
Paapaa ulua	207	349	1.69
White ulua	835	1,242	1.49
Black ulua	81	125	1.54
Giant sea bass	8,241	22,113	2.68
Blue spot grouper	10	19	1.90
Snappers	299	883	2.95
Blue lined snapper	3,076	3,308	1.08
Ehu (red snapper)	2,387	9,365	3.92
Gindai (flower snapper)	310	994	3.21
Kalekale (pink snapper)	1,268	4,151	3.27
Lehi (silverjaw)	568	1,529	2.69
Onaga (red snapper)	7,229	38,684	5.35
Opakapaka (pink snapper)	16,706	75,655	4.53
Uku (gray snapper)	9,171	23,628	2.58
Porgy	148	353	2.38
Reef jacks	5	12	2.40
Squirrelfish	4,735	15,458	3.26
Trumpetfish	4	3	0.63
Scorpionfish	141	685	4.86
Mountain bass	155	605	3.91
Bigeyes	239	585	2.45
Goatfish	7,756	21,462	2.77
Rudderfish	470	749	1.59
Damselfish	363	718	1.98
Hawkfish	29	61	2.11
Wrasse	451	1,512	3.35
Parrotfish	3,452	7,645	2.21
Surgeon/tangs	8,640	10,584	1.23

Table IV.1.11 (Cont.)

Species	Pounds	Value	$/lb
Filefish	61	122	2.00
Rainbow runner	109	145	1.33
Mahimahi (dolphin)	72,620	170,267	2.34
Barracudas	2,773	2,096	0.76
Wahoo	56,610	140,562	2.48
Tunas	844	1,229	1.46
Skipjack tuna	164,877	235,419	1.43
Yellowfin tuna	283,222	671,635	2.37
Albacore	263,451	344,787	1.31
Bigeye tuna	325,589	870,301	2.67
Kawakawa	277	289	1.04
Broadbill swordfish	80,792	248,030	3.07
Blue marlin	129,332	133,762	1.03
Black marlin	283	344	1.21
Striped marlin	49,517	70,981	1.43
Shortnose spearfish	18,742	19,498	1.04
Sailfish	2,077	1,921	0.92
Ocean moonfish	108,553	104,954	0.97
Spiny lobster	16,675	247,666	14.85
Slipper lobster	12,516	87,890	7.02
Crabs	7,706	29,855	3.87
Shrimp (saltwater)	485	3,600	7.42
Octopus	2,678	7,912	2.95
Squid	629	1,582	2.52
Limpets (saltwater)	1,042	4,735	4.54
Precious corals	222	5,550	25.00
Sea cucumbers	36	284	7.88
Algae	145	872	6.02
** SUBTOTAL **	1,817,924	3,869,885	2.13

Table IV.1.12

Hawaii October 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	368	756	2.06
Sharks	6,527	5,332	0.82
Eels	45	50	1.12
Alfonsin	11	33	3.00
Bigeye scad (akule)	53,283	80,347	1.51
Mackerel scad	26,019	46,029	1.77
Leatherback	39	54	1.39
Bonefish	836	886	1.06
Milkfish	15	23	1.50
Needlefish	50	50	1.00
Threadfin	82	604	7.37
Mullet	339	818	2.41
Pomfret	16,905	26,000	1.54
Jacks (misc.)	2,805	5,177	1.85
Amberjack	82	95	1.16
Blue crevally	72	111	1.54
Pig-lipped ulua	7,817	9,856	1.26
Dobe ulua	390	718	1.84
Paapaa ulua	365	491	1.34
White ulua	885	1,372	1.55
Black ulua	261	243	0.93
Giant sea bass	11,766	24,452	2.08
Blue spot grouper	21	43	2.04
Snappers	155	461	2.97
Blue lined snapper	4,038	3,344	0.83
Ehu (red snapper)	2,755	8,998	3.27
Gindai (flower snapper)	681	1,792	2.63
Kalekale (pink snapper)	1,737	5,616	3.23
Lehi (silverjaw)	1,077	3,590	3.33
Onaga (red snapper)	11,891	55,403	4.66
Opakapaka (pink snapper)	18,949	79,965	4.22
Uku (gray snapper)	9,633	27,846	2.89
Porgy	286	578	2.02
Squirrelfish	4,488	13,569	3.02
Trumpetfish	10	6	0.58
Scorpionfish	124	407	3.28
Mountain bass	268	877	3.27
Bigeyes	256	692	2.70
Goatfish	6,972	21,924	3.14
Rudderfish	2,431	1,924	0.79
Damselfish	316	618	1.95
Hawkfish	32	66	2.06
Tilapia	33	71	2.16
Wrasse	342	1,168	3.41
Parrotfish	2,321	5,252	2.26
Surgeon/tangs	8,966	11,593	1.29

Table IV.1.12 (Cont.)

Species	Pounds	Value	$/lb
Filefish	22	44	1.98
Rainbow runner	461	756	1.64
Mahimahi (dolphin)	116,771	212,846	1.82
Barracudas	734	932	1.27
Wahoo	36,244	87,556	2.42
Tunas	1,388	11,256	8.11
Skipjack tuna	230,045	254,925	1.11
Yellowfin tuna	195,636	420,979	2.15
Albacore	158,803	186,762	1.18
Bigeye tuna	489,437	1,264,615	2.58
Kawakawa	1,422	1,411	0.99
Broadbill swordfish	21,135	48,034	2.27
Blue marlin	97,794	90,673	0.93
Black marlin	679	722	1.06
Striped marlin	116,484	106,325	0.91
Shortnose spearfish	22,554	15,579	0.69
Sailfish	3,561	1,889	0.53
Ocean moonfish	118,973	87,105	0.73
Spiny lobster	1,388	14,424	10.39
Slipper lobster	26	181	6.96
Crabs	7,652	28,983	3.79
Shrimp (saltwater)	46,986	189,407	4.03
Octopus	2,085	6,061	2.91
Squid	199	535	2.69
Limpets (saltwater)	685	3,078	4.49
Precious corals	240	5,950	24.79
Sea cucumbers	19	152	8.00
Algae	162	757	4.67
** SUBTOTAL **	1,878,329	3,491,237	1.86

Table IV.1.13

Hawaii November 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	144	46	0.32
Sharks	13,871	22,776	1.64
Eels	4	4	1.11
Bigeye scad (akule)	51,471	83,621	1.62
Mackerel scad	23,573	39,162	1.66
Leatherback	41	78	1.89
Ten pounder	30	38	1.25
Bonefish	1,693	1,868	1.10
Threadfin	13	64	4.93
Mullet	870	2,619	3.01
Pomfret	22,824	20,175	0.88
Jacks (misc.)	1,825	3,780	2.07
Amberjack	254	263	1.03
Blue crevally	79	103	1.30
Pig-lipped ulua	3,145	2,882	0.92
Dobe ulua	530	794	1.50
Paapaa ulua	1,042	1,752	1.68
White ulua	981	1,230	1.25
Black ulua	133	174	1.31
Giant sea bass	5,915	13,921	2.35
Blue spot grouper	17	39	2.31
Snappers	157	386	2.46
Blue lined snapper	5,276	5,771	1.09
Ehu (red snapper)	1,872	5,950	3.18
Gindai (flower snapper)	223	587	2.63
Kalekale (pink snapper)	1,330	3,746	2.82
Lehi (silverjaw)	918	2,755	3.00
Onaga (red snapper)	12,312	44,525	3.62
Opakapaka (pink snapper)	13,485	53,522	3.97
Uku (gray snapper)	3,882	9,453	2.44
Porgy	198	441	2.23
Squirrelfish	3,489	10,457	3.00
Trumpetfish	9	6	0.67
Scorpionfish	140	464	3.31
Mountain bass	240	679	2.83
Bigeyes	353	913	2.59
Goatfish	6,044	14,916	2.47
Rudderfish	557	818	1.47
Damselfish	155	329	2.12
Hawkfish	5	11	2.20
Tilapia	2	2	1.13
Wrasse	548	2,334	4.26
Parrotfish	1,732	3,849	2.22
Surgeon/tangs	6,248	8,654	1.39
Filefish	3	4	1.27
Rainbow runner	787	1,168	1.48

Table IV.1.13 (Cont.)

Species	Pounds	Value	$/lb
Mahimahi (dolphin)	118,665	194,683	1.64
Barracudas	1,068	1,350	1.26
Wahoo	31,924	66,540	2.08
Tunas	2,130	4,765	2.24
Skipjack tuna	102,599	133,464	1.30
Yellowfin tuna	211,329	419,505	1.99
Albacore	109,953	135,743	1.23
Bigeye tuna	759,448	1,766,990	2.33
Kawakawa	236	361	1.53
Broadbill swordfish	162,840	266,619	1.64
Blue marlin	78,106	69,186	0.89
Striped marlin	143,393	115,208	0.80
Shortnose spearfish	41,259	13,874	0.34
Sailfish	4,117	1,415	0.34
Ocean moonfish	131,922	97,150	0.74
Spiny lobster	242	2,232	9.22
Slipper lobster	10	66	6.60
Crabs	4,578	18,507	4.04
Shrimp (saltwater)	58,862	220,438	3.74
Octopus	723	2,065	2.86
Squid	280	434	1.55
Limpets (saltwater)	878	4,281	4.88
Precious corals	150	3,800	25.33
Sea cucumbers	24	191	7.97
Algae	258	1,865	7.23
** SUBTOTAL **	2,153,414	3,907,861	1.81

Table IV.1.14

Hawaii December 1998 Reported Commercial Landings

Species	Pounds	Value	$/lb
Miscellaneous	198	288	1.46
Sharks	13,483	20,318	1.51
Alfonsin	19	67	3.50
Bigeye scad (akule)	67,151	104,184	1.55
Mackerel scad	32,038	51,325	1.60
Leatherback	56	109	1.94
Ten pounder	58	74	1.27
Bonefish	267	328	1.23
Needlefish	20	20	1.00
Threadfin	3	21	7.05
Mullet	101	328	3.24
Pomfret	21,357	22,999	1.08
Snake mackerel	16	20	1.25
Jacks (misc.)	2,384	4,872	2.04
Amberjack	39	57	1.46
Blue crevally	103	162	1.57
Pig-lipped ulua	3,469	4,749	1.37
Dobe ulua	78	175	2.24
Paapaa ulua	135	403	2.99
White ulua	453	631	1.39
Giant sea bass	6,283	15,716	2.50
Snappers	87	242	2.79
Blue lined snapper	5,480	5,257	0.96
Ehu (red snapper)	3,926	15,190	3.87
Gindai (flower snapper)	676	1,654	2.45
Kalekale (pink snapper)	1,851	4,671	2.52
Lehi (silverjaw)	589	2,026	3.44
Onaga (red snapper)	18,523	85,935	4.64
Opakapaka (pink snapper)	22,206	93,341	4.20
Uku (gray snapper)	3,637	11,071	3.04
Porgy	145	375	2.59
Squirrelfish	2,425	7,577	3.12
Trumpetfish	20	15	0.77
Scorpionfish	414	1,658	4.00
Mountain bass	101	348	3.44
Bigeyes	138	308	2.23
Goatfish	6,274	16,876	2.69
Rudderfish	3,256	3,585	1.10
Damselfish	331	533	1.61
Hawkfish	9	20	2.26
Tilapia	1	1	1.00
Wrasse	696	2,817	4.05
Parrotfish	2,072	4,850	2.34
Surgeon/tangs	6,262	8,938	1.43
Filefish	24	33	1.38
Rainbow runner	159	206	1.29

Table IV.1.14 (Cont.)

Species	Pounds	Value	$/lb
Mahimahi (dolphin)	43,833	113,896	2.60
Barracudas	493	599	1.22
Wahoo	30,875	75,052	2.43
Tunas	496	2,265	4.57
Skipjack tuna	101,609	142,402	1.40
Yellowfin tuna	304,472	723,053	2.37
Albacore	161,104	178,088	1.11
Bigeye tuna	818,350	2,518,480	3.08
Kawakawa	146	291	1.99
Broadbill swordfish	156,747	362,654	2.31
Blue marlin	62,187	63,153	1.02
Black marlin	263	154	0.58
Striped marlin	203,318	158,913	0.78
Shortnose spearfish	67,793	23,519	0.35
Sailfish	536	209	0.39
Ocean moonfish	96,590	82,339	0.85
Spiny lobster	428	4,308	10.07
Slipper lobster	7	55	7.82
Crabs	3,209	14,405	4.49
Shrimp (saltwater)	33,335	140,771	4.22
Octopus	733	2,058	2.81
Limpets (saltwater)	783	3,305	4.22
Precious corals	210	5,250	25.00
Sea cucumbers	12	93	7.74
Algae	115	641	5.57
** SUBTOTAL **	2,314,657	5,110,325	2.21
** TOTAL **	26,656,192	56,470,614	2.12

Figure V.1.1

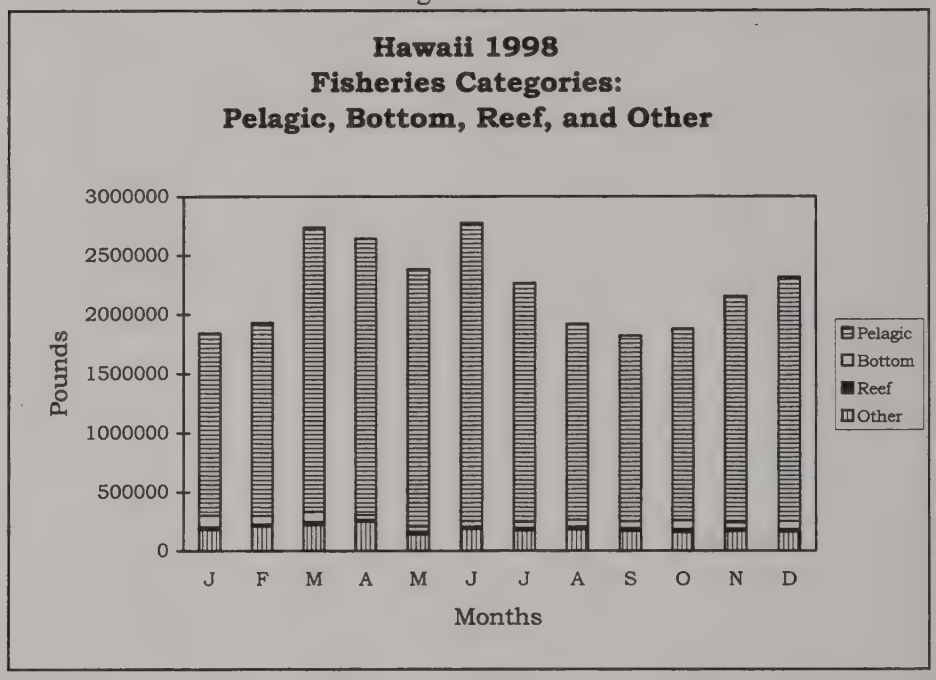


Figure V.1.2

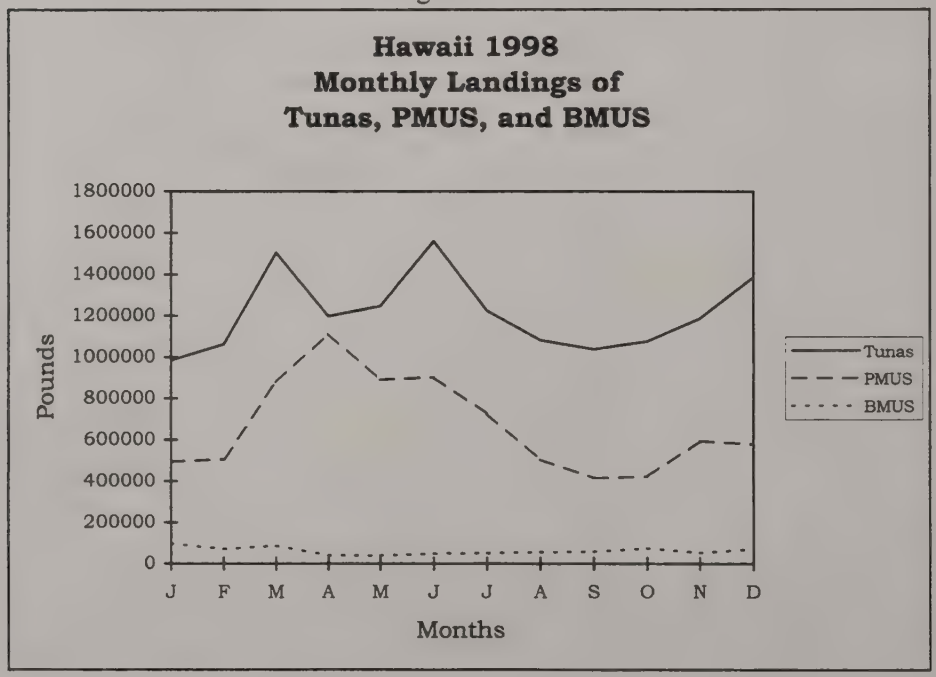


Figure V.1.3

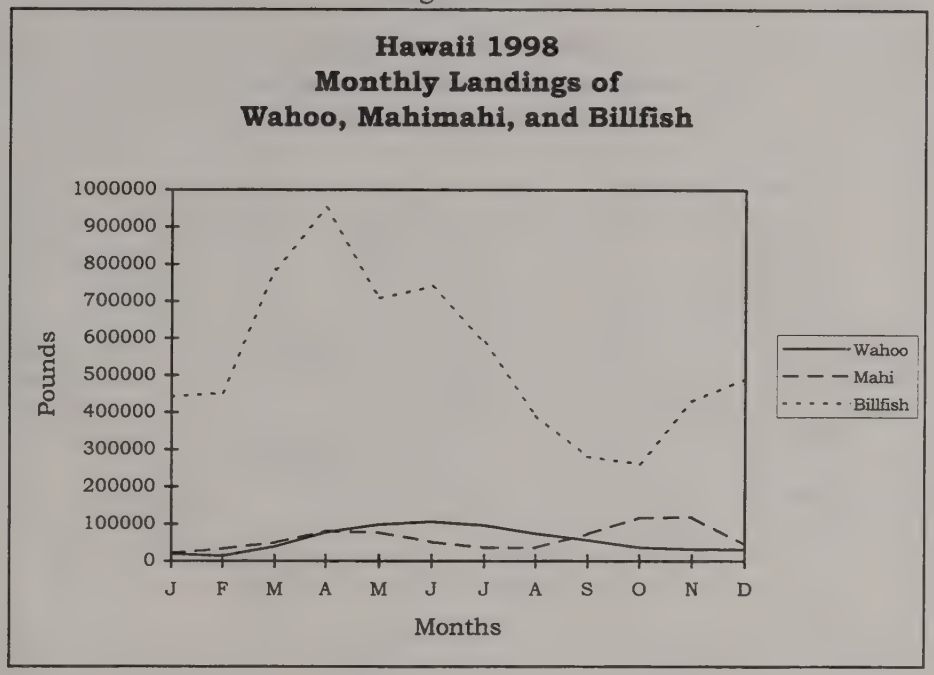


Figure V.1.4

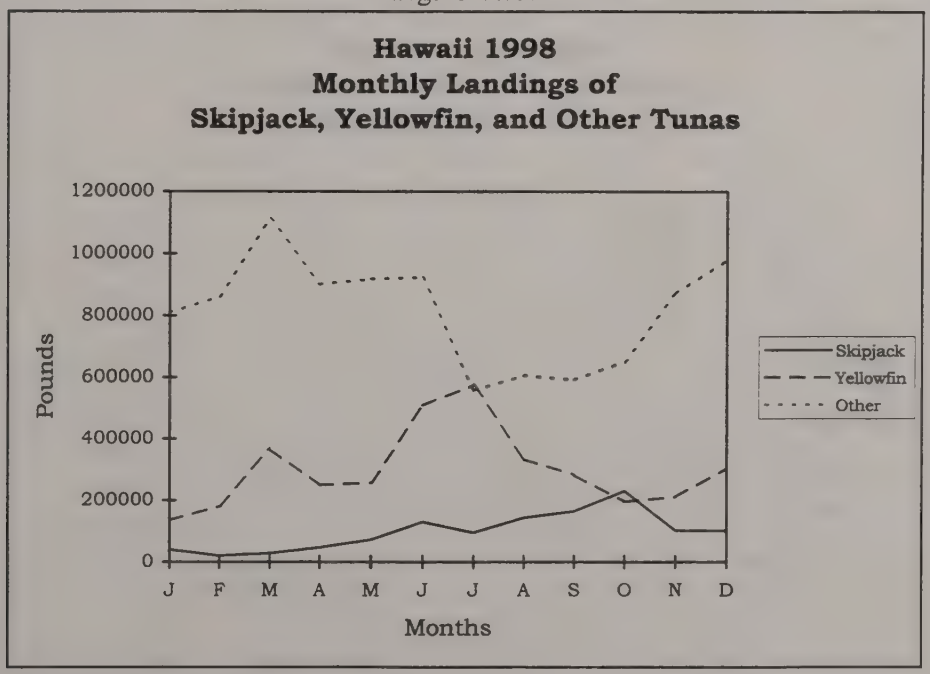
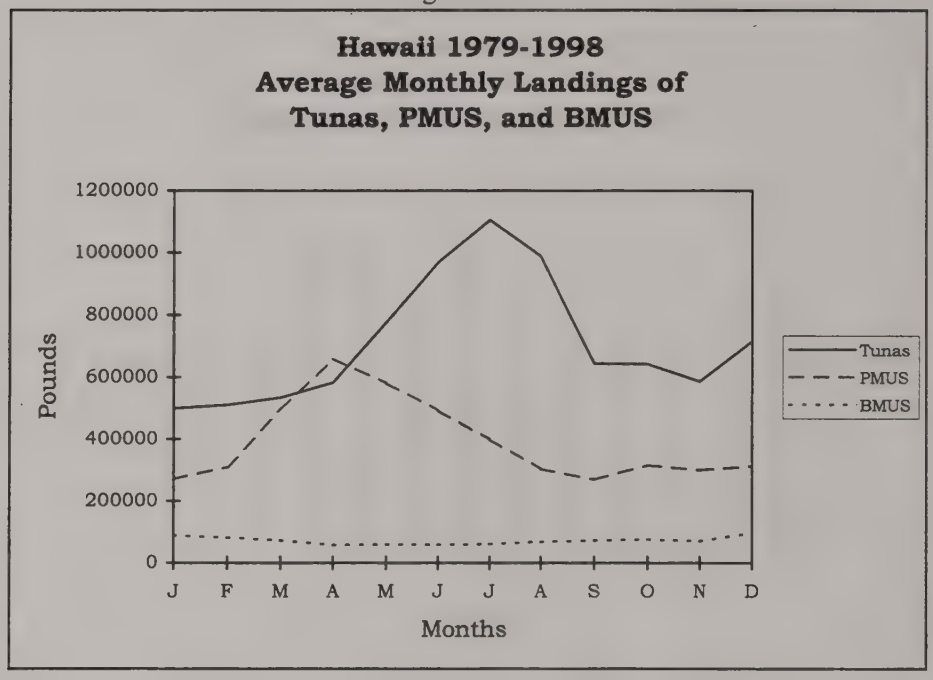


Figure V.2.1



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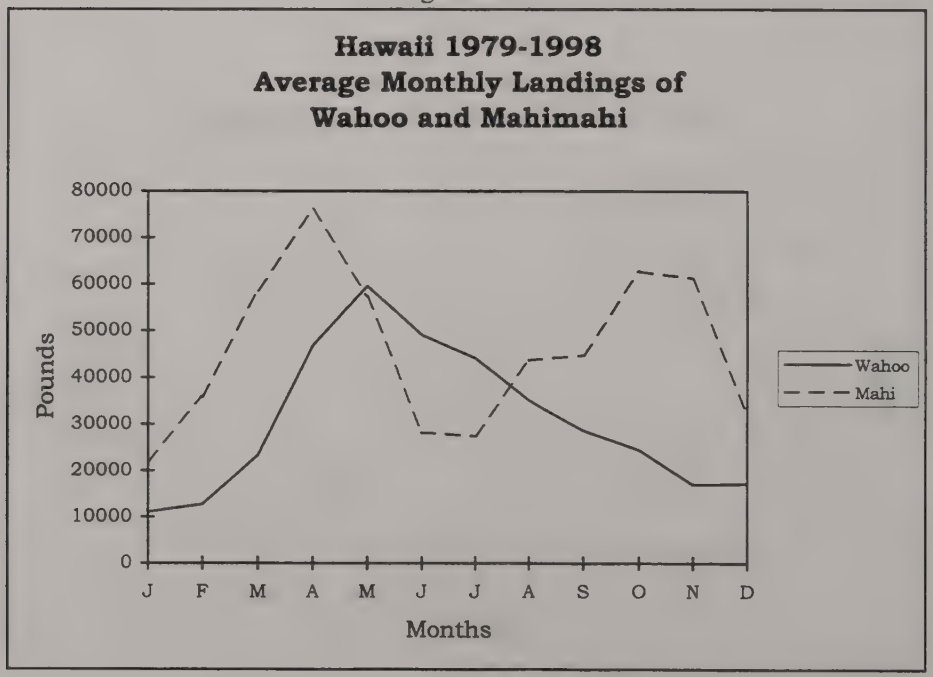

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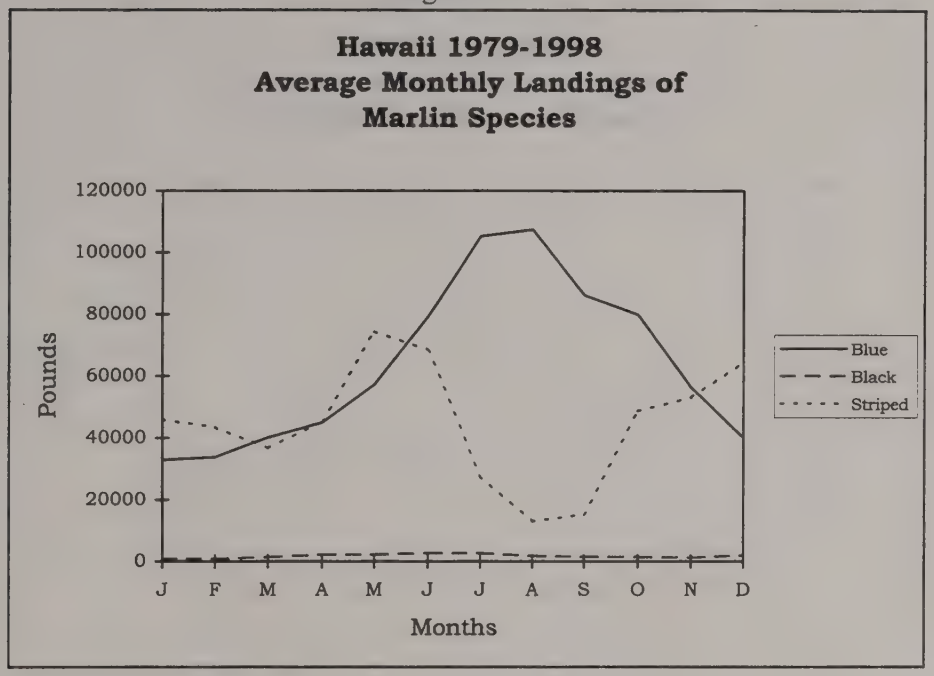

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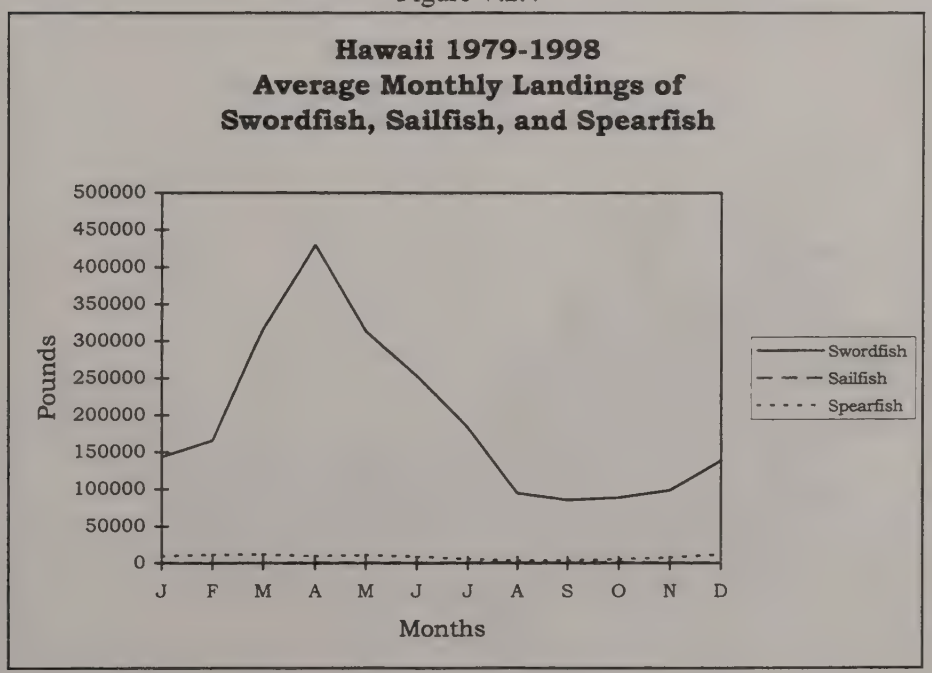
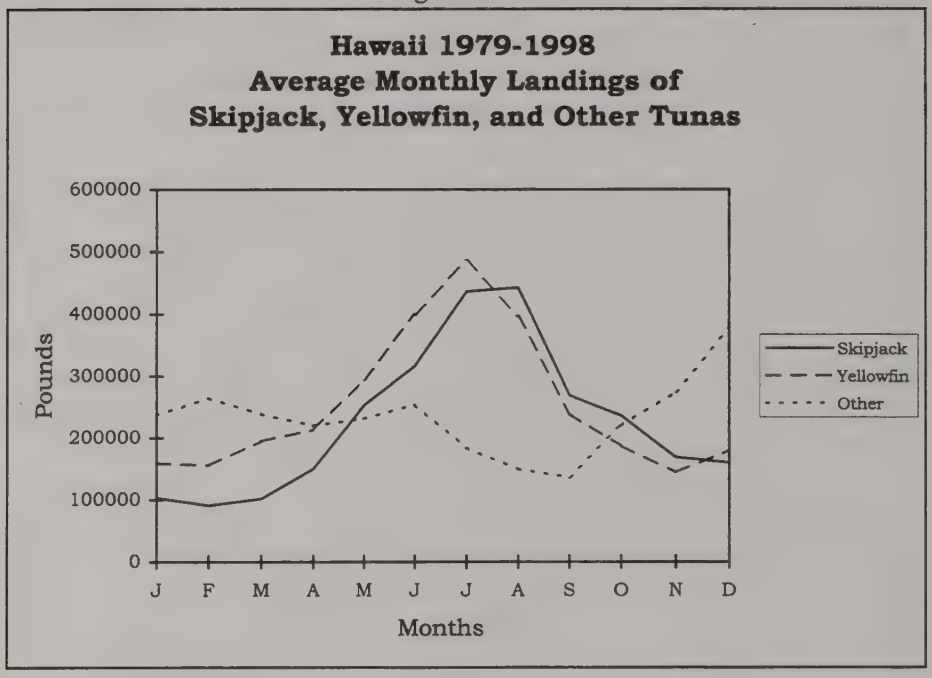


Figure V.2.5



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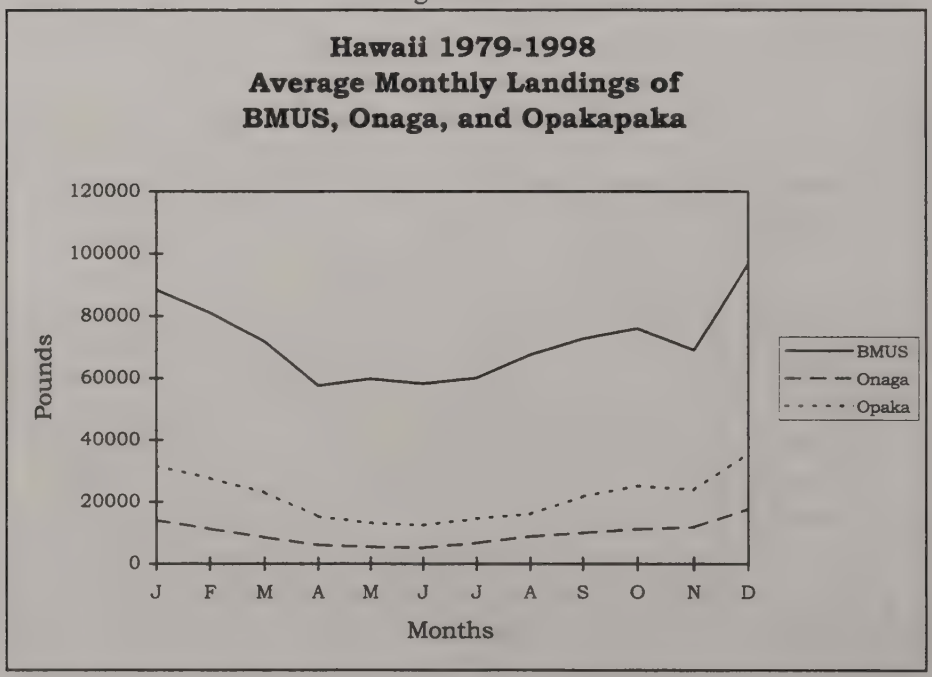


Figure V.2.7

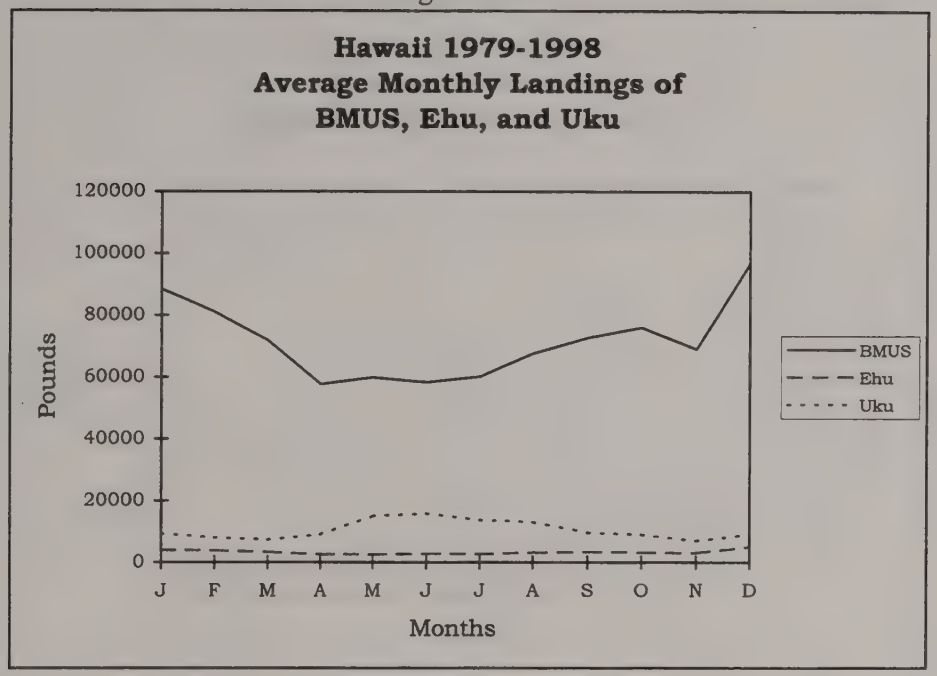
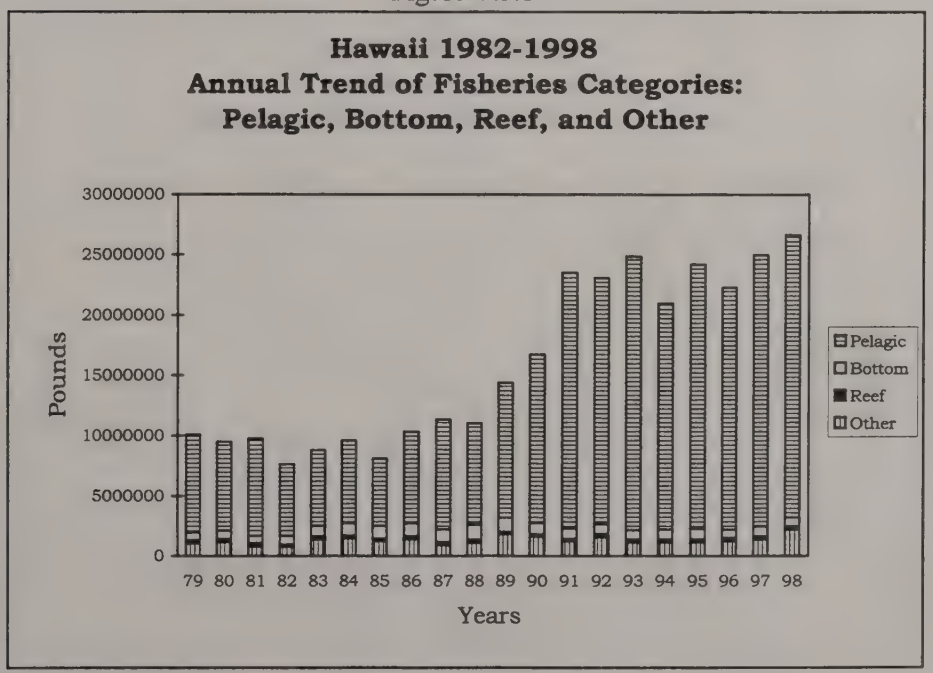


Figure V.3.1



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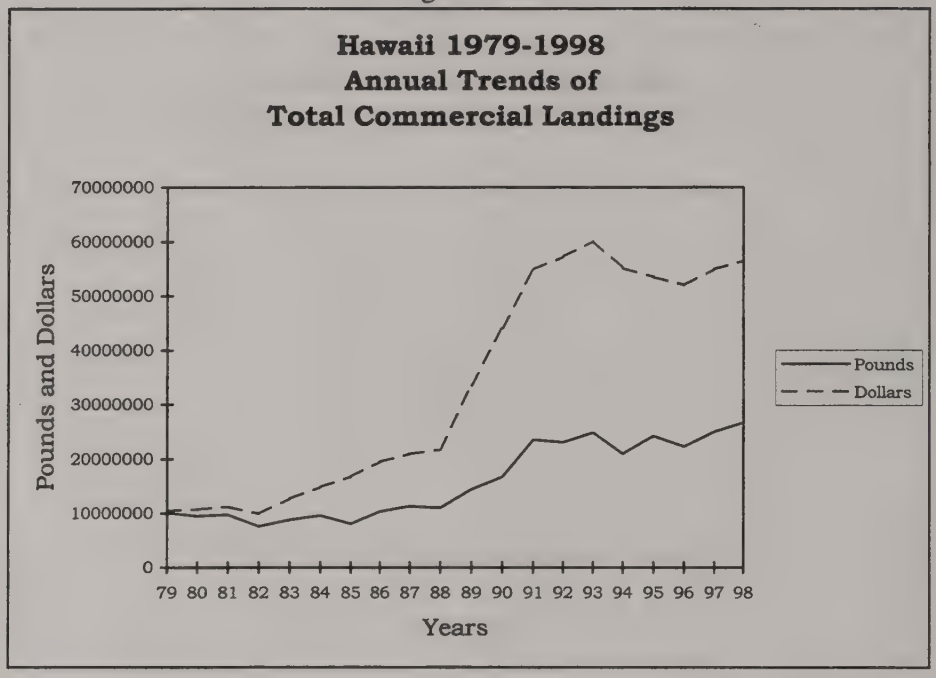

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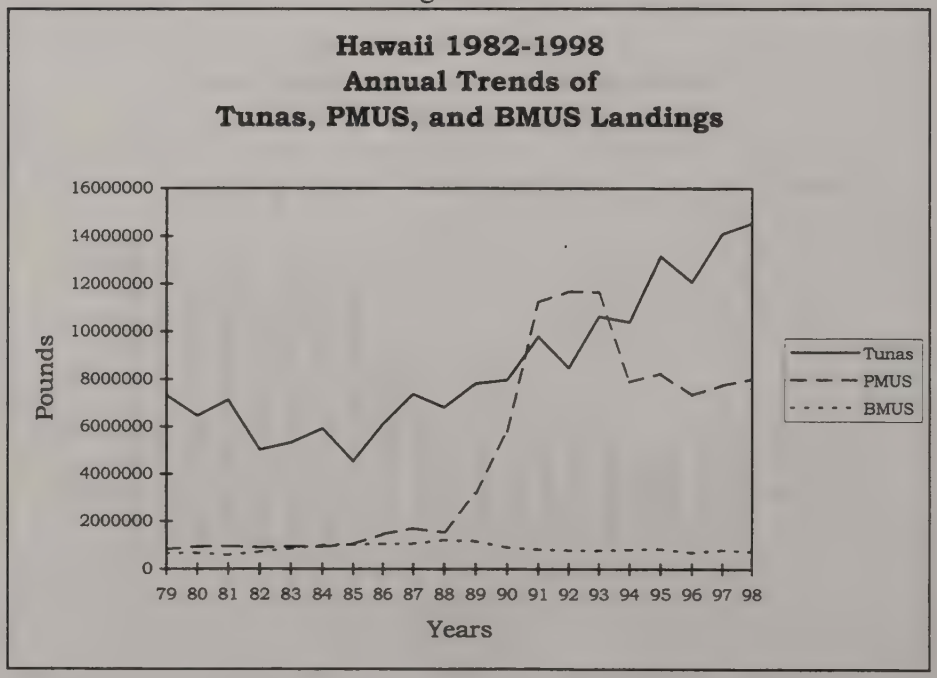

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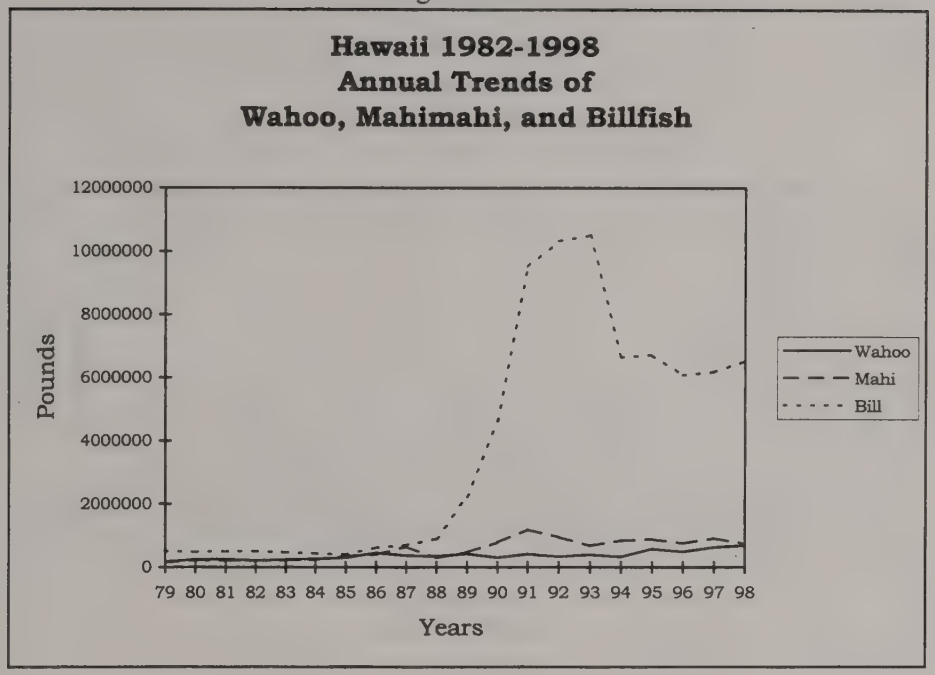

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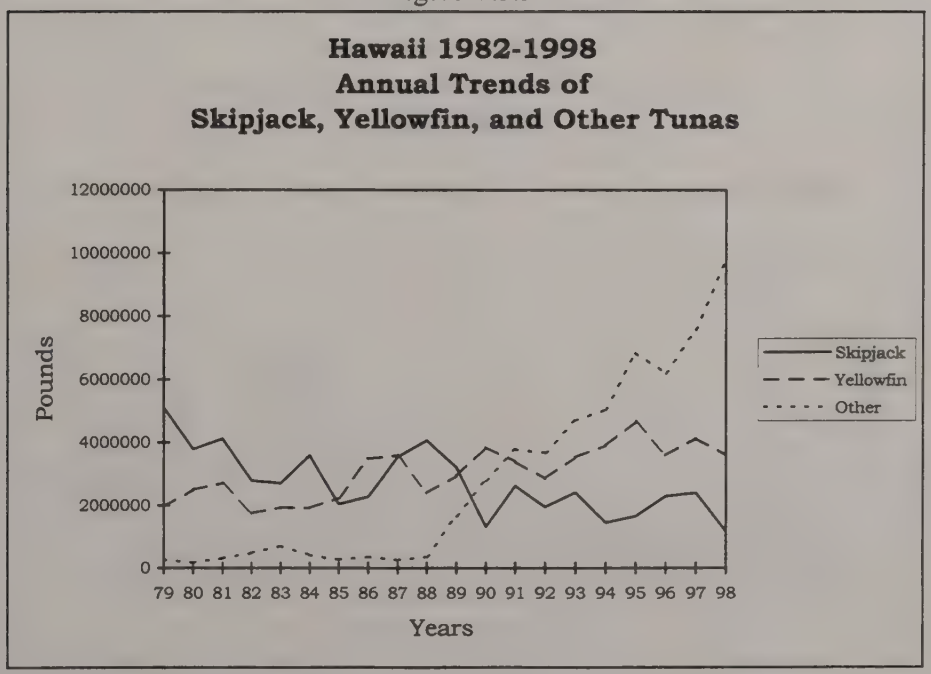
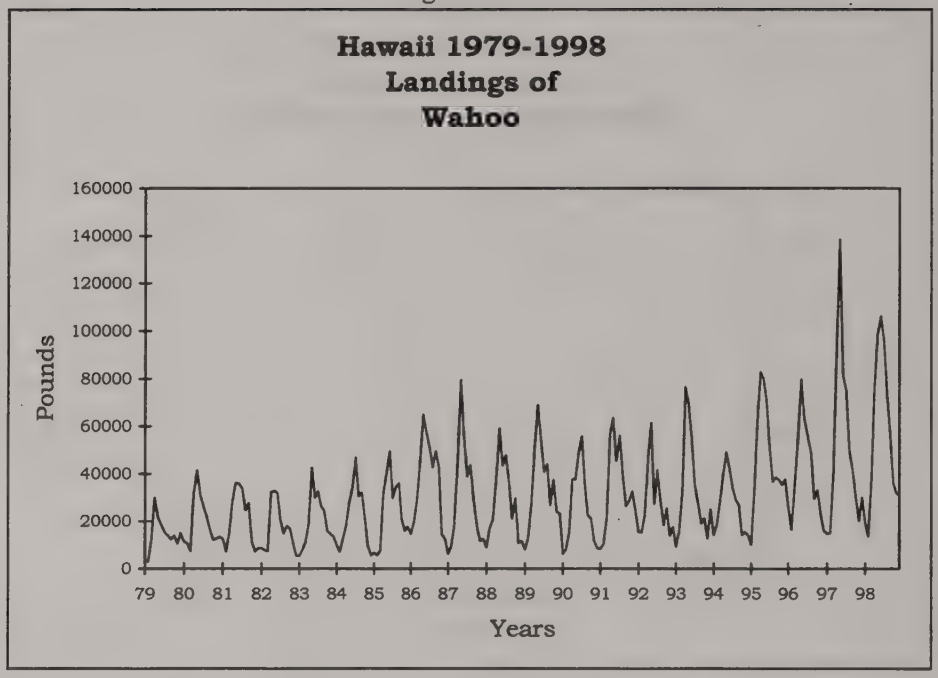


Figure V.4.1



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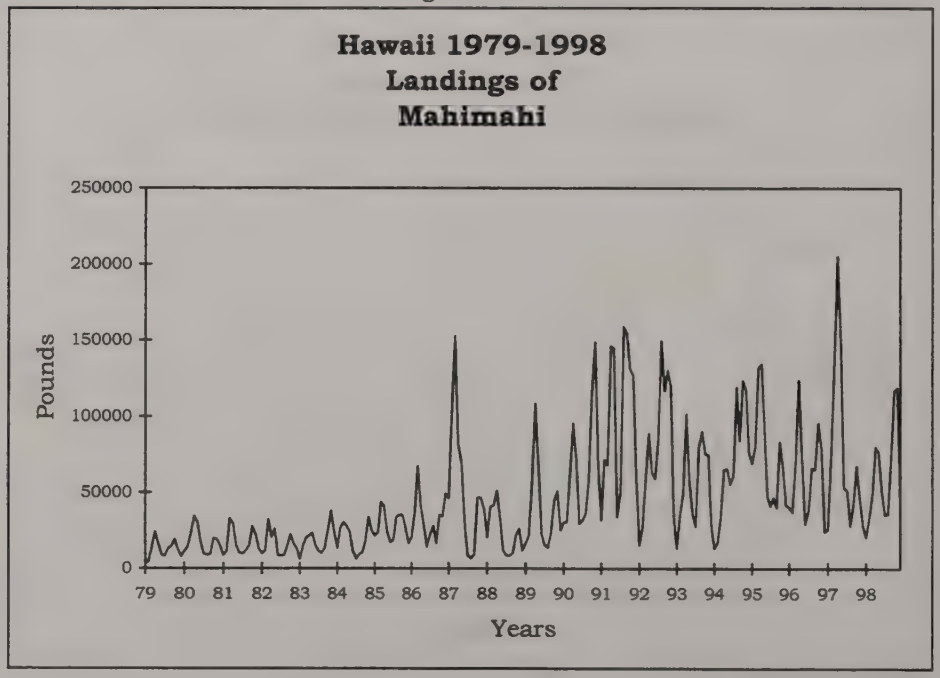

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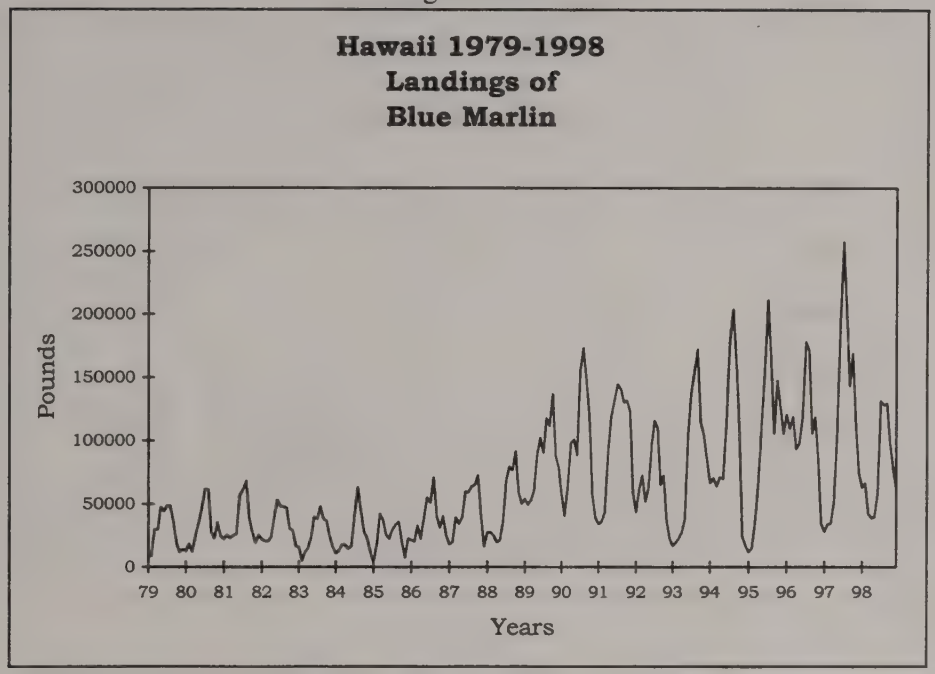

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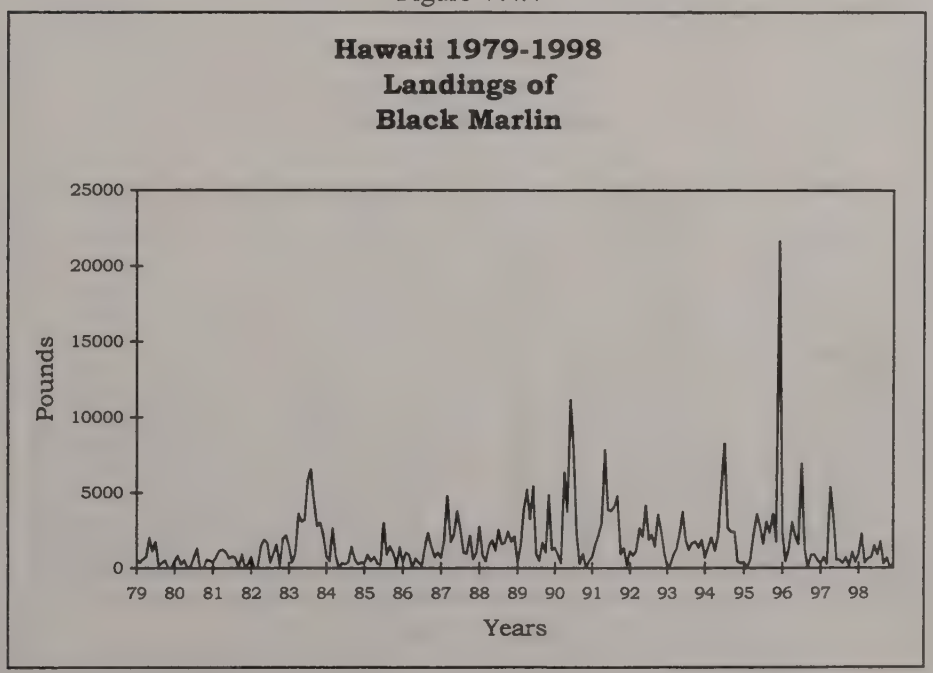

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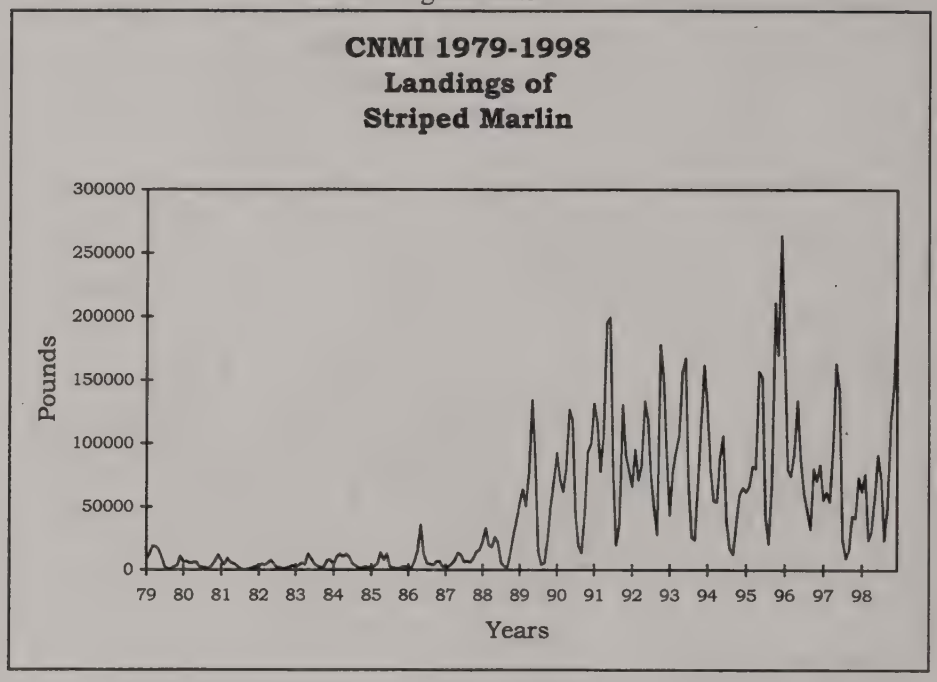

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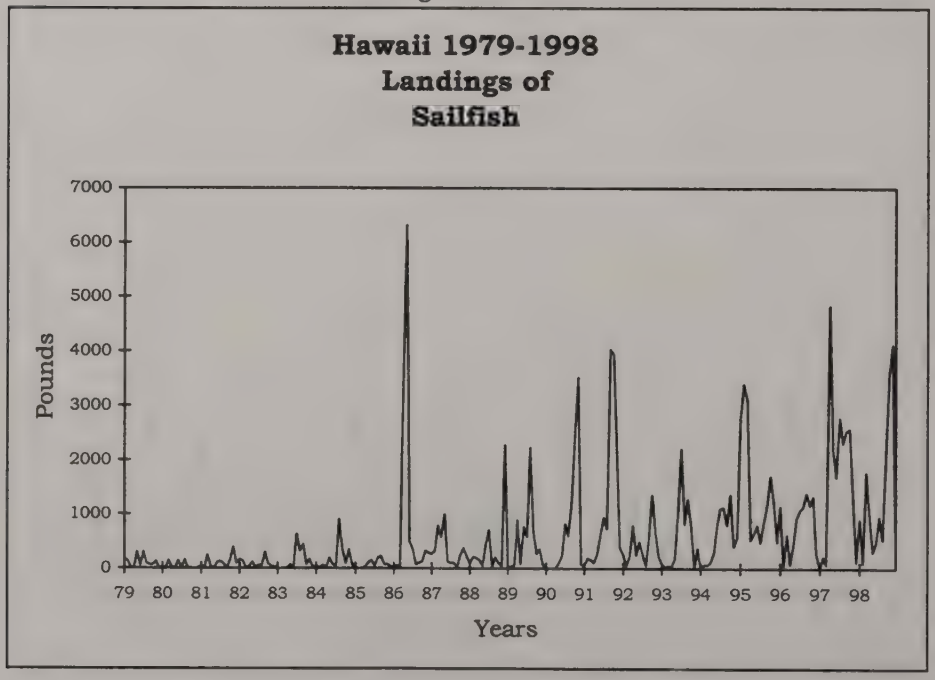

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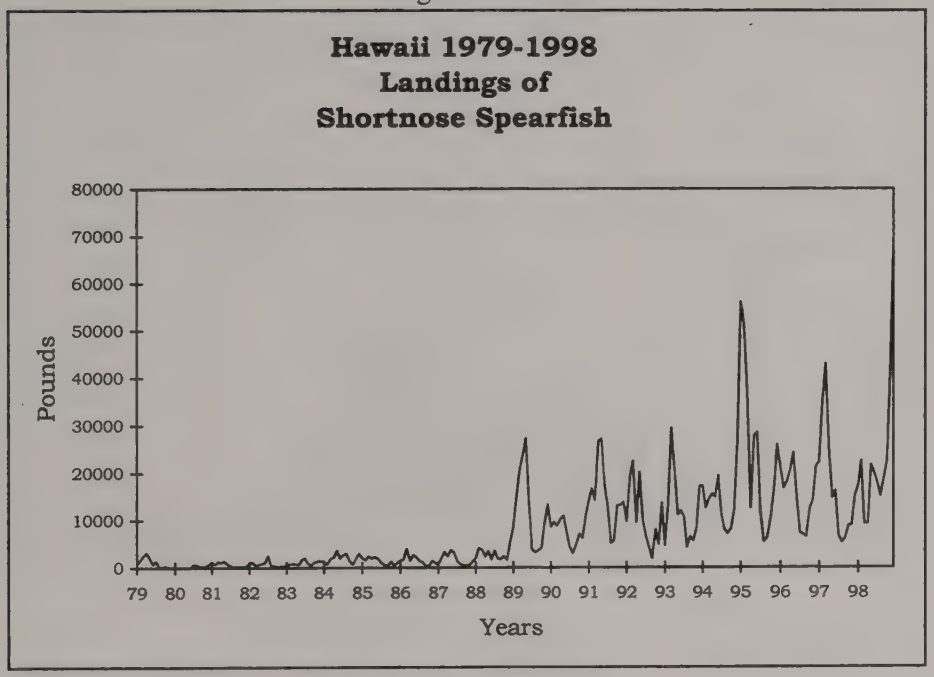

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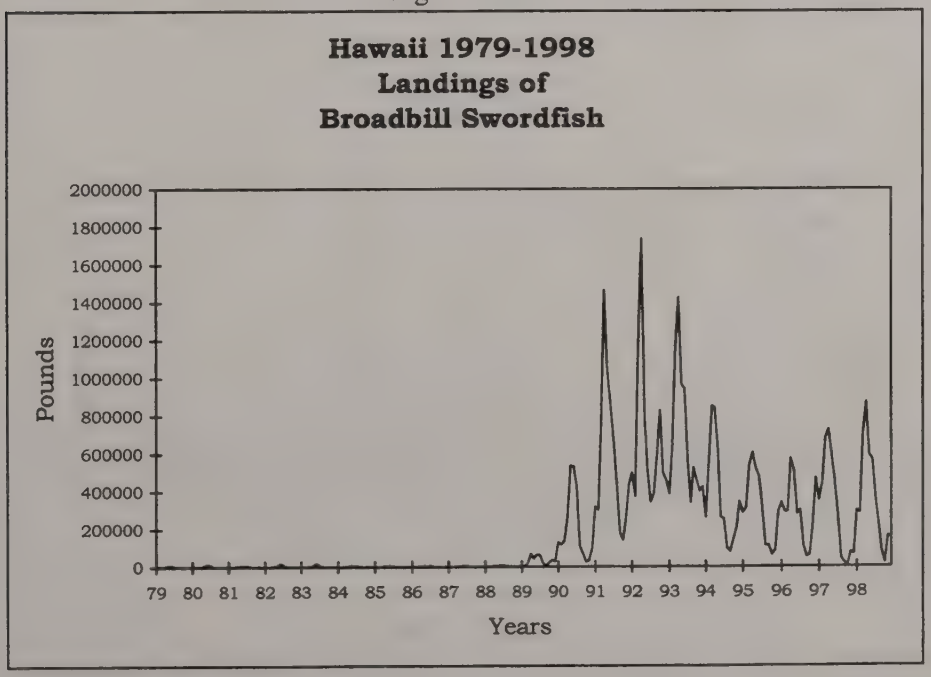


Figure V.4.9

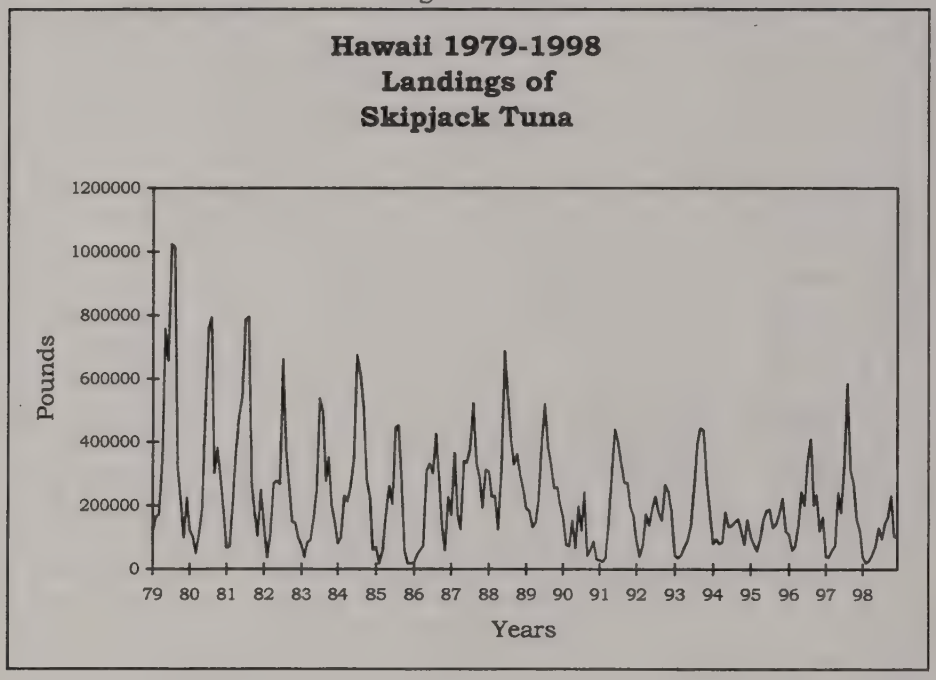


Figure V.4.10

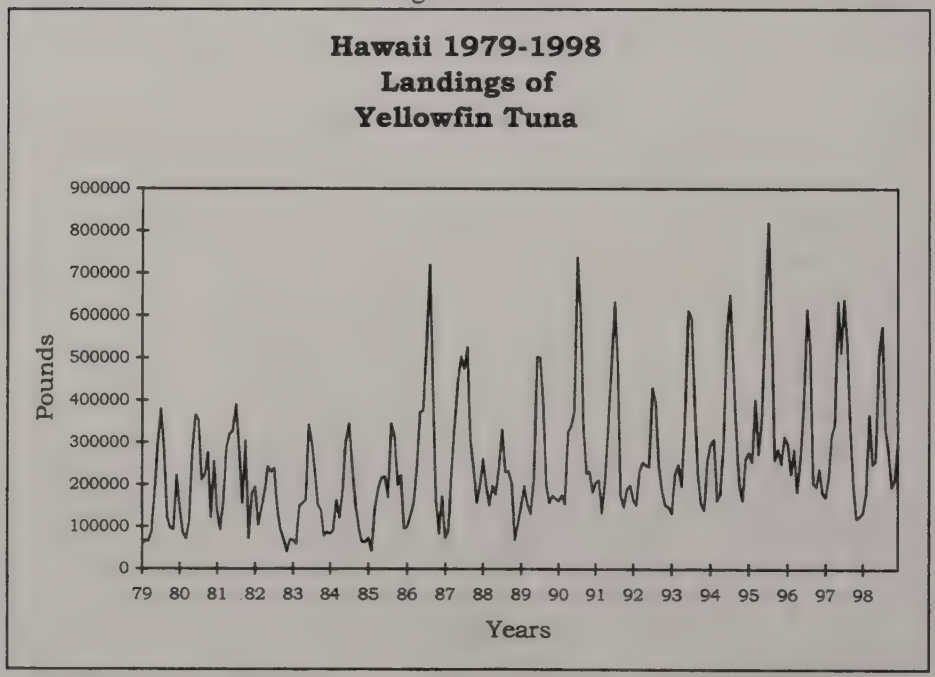
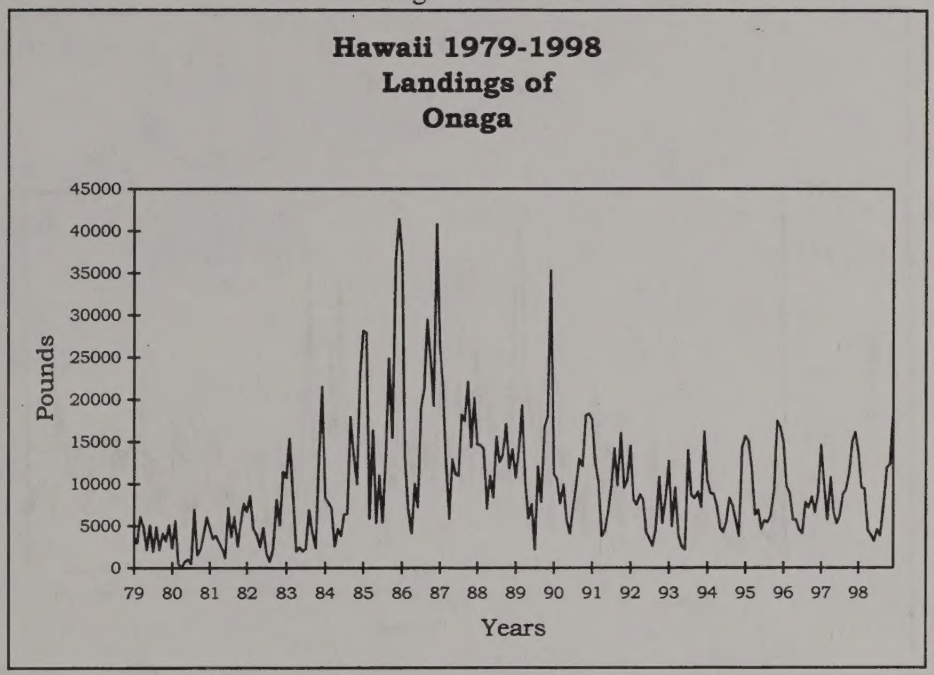


Figure V.4.11



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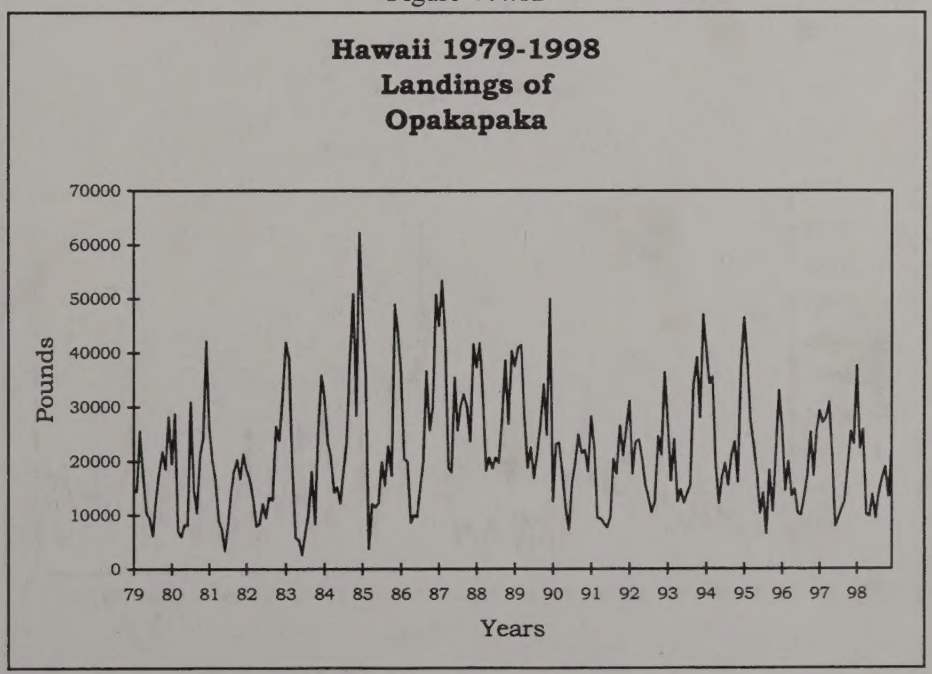

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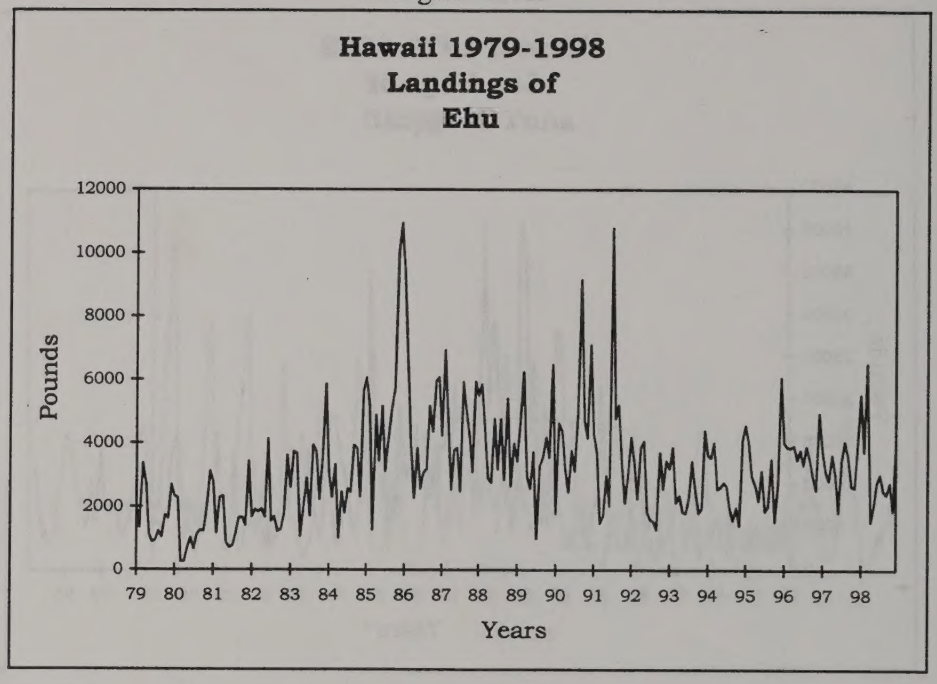

Figure V.4.14